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G.L.C 30 SECTION 61 FINDINGS BY THE MWRA ON THE FINAL
SECONDARY TREATMENT FACILITIES. PLAN FOR BOSTON HARBOR

GOVERNMENT DOCUMENTS
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Submitted By:

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December 15, 1988



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NOTICE TO REVIEWERS

Attached for your review is the Draft G.L.C 30 Section 61 Findings on the Final Secondary Treatment Facilities Plan for Boston Harbor, including an appendix which responds to comments received on the facilities plan. This document has been reviewed by the MWRA Board of Directors and approved for public review. This document will be noticed in the Massachusetts Environmental Policy Act (MEPA) Unit Environmental Monitor and comments should be forwarded to:

Mr. Steven Davis
MEPA Unit
Executive Office of Environmental Affairs
100 Cambridge Street - 20th Floor
Boston, Massachusetts 02202

This document focuses upon the entire Secondary Treatment Facilities Plan for Boston Harbor with the exception of off-island utilities which are the subject of a supplemental volume, Supplement to Appendix H, Volume III, Off-Island Utility Supply. The supplemental volume has undergone MEPA review as a draft and is currently being finalized by the MWRA. The final supplemental volume will also be submitted for MEPA review and a separate set of Section 61 findings on off-island utilities will be produced.

Thank you for your interest in this document and we look forward to your comments.

Richard D. Fox
Director, MWRA Program Management Division
December 15, 1988

DRAFT

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**G.L.C 30 SECTION 61 FINDINGS BY THE MWRA ON THE FINAL
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**G.L.C 30 SECTION 61 FINDINGS BY THE MWRA ON THE FINAL SECONDARY
TREATMENT FACILITIES PLAN FOR BOSTON HARBOR**

I. Introduction

In May 1988, the MWRA completed the facilities planning and environmental review process for the new primary and secondary wastewater treatment facilities to be located on Deer Island, the inter-island tunnel, and the effluent outfall tunnel. Eight volumes and numerous appendices comprise the facilities plan and environmental impact reports. These reports document the analyses and decision process followed during the two year planning effort used to select the wastewater treatment processes and the location of the outfall tunnel alignment and diffuser, and to evaluate the environmental impacts of these facilities. Since May 1988, MWRA has received and evaluated comments on the Final Environmental Impact Report (FEIR) including the Secretary's Certificate of Adequacy, and has reviewed the Environmental Protection Agency's Draft and Final Supplemental Environmental Impact Statement on the Wastewater Conveyance System. Based on this information, the MWRA has completed the planning process for these facilities and has commenced design.

This document responds to the requirements of the Secretary's May 18, 1988 Certificate of Adequacy from the Executive Office of Environmental Affairs in that it:

- restates and updates the commitments to mitigation made in the Section 61 Findings on the Selection of Deer Island as the Site for Wastewater Treatment Facilities in Boston Harbor;
- describes the commitments to mitigation made by the Authority for each of the issues raised in the May 1988 Certificate;
- includes, as an Appendix, the Authority's responses to public and agency comments on the FEIR;
- addresses any changes necessitated by the Draft and Final EIS on the Wastewater Conveyance System and Outfalls.

**II. Description of Secondary Treatment Facilities Plan and EIR
Major & Complicated Process**

The Secondary Treatment Facilities Plan (STFP) and Environmental Impact Report (EIR) evaluated the facilities needed to provide primary and secondary treatment of the wastewater conveyed

through the Massachusetts Water Resources Authority's North and South sewerage collection systems. Treatment is to be provided at a single wastewater treatment facility to be constructed on Deer Island. The STFP also evaluated the tunnels and support facilities needed to convey the South System flows from the existing Nut Island Plant to Deer Island, and the outfall facilities needed to convey the treated effluent from Deer Island to a disposal point in marine waters.

The need for upgraded and expanded treatment facilities to serve the Boston metropolitan area is clear:

- present discharges place a significant burden on Boston Harbor, one of the area's vital natural resources;
- the existing treatment facilities have long exceeded their useful lives and do not reflect present day technology and design;
- federal and state statutes require enhanced levels of treatment;
- the Federal Court has intervened and ordered an upgrading of the treatment facilities.

The STFP and EIR provide the foundation for the Massachusetts Water Resources Authority's program for the design, construction and operation of new primary and secondary wastewater treatment facilities at Deer Island. This planning has been approached with the understanding that the facilities planning effort must secure and sustain the acceptance and support of the diverse community, government and business interests that it affects. Therefore, the planning process was based not on technical strength alone, but also on the continual reconciliation of political, legal, environmental, economic and community interests.

On February 3, 1986, the MWRA made its final selection of a site for the proposed harbor island wastewater treatment plant. The selection of Deer Island as the location for the new facility brought to a close eight years of evaluation, discussion, comment and refinement of siting issues. Most of the history of the process, and information explored, is contained in the Supplemental Draft Environmental Impact Statement/Draft Environmental Impact Report (SDEIS/DEIR) and the MWRA's November 1985 Final Environmental Impact Report on the Siting of Wastewater Treatment Facilities in Boston Harbor (FEIR).

To expedite the planning and review process, the facilities planning for secondary treatment has received a designation as a "major and complicated" project under the Massachusetts Environmental Policy Act (MEPA) regulations. The "major and

complicated" project designation permits the environmental reviews to be concurrent with, and an integral part of, the facilities planning process. Thus, the documents being prepared to summarize the facilities planning are the same documents which are used for environmental reviews.

The planning period used in this facilities plan encompasses the period from 1986 through the year 2020. This represents the first twenty years of operation of the secondary plant, which has been stipulated by the Federal Court to be in operation not later than the end of 1999. The STFP document is divided into eight volumes.

Volume I	Executive Summary
Volume II	Facilities Planning Background
Volume III	Treatment Plant
Volume IV	Inter-Island Conveyance System
Volume V	Effluent Outfall
Volume VI	Early Site Preparation
Volume VII	Institutional Considerations
Volume VIII	Public Participation and Responsiveness Summary

Volume II, Facilities Planning Background, describes the need for the planning project and the planning approach. It summarizes previous studies for the cleanup of Boston Harbor and other harbor-related projects. It also outlines the decision making process in the siting of the new facilities, and the court-ordered dates for implementation of the Facilities Plan.

The planning period and the service area for the facilities, projected wastewater flows and loads, and criteria used to evaluate all of the possible treatment processes in order to determine the most feasible, effective methods of treatment are also described in Volume II. The existing treatment facilities, environments, and regulations were also examined in Volume II, as are the environmental regulations that will affect the construction of the planned facilities. The facilities needed to provide wastewater treatment include the following: new primary and secondary treatment facilities located on Deer Island, and preliminary treatment facilities at Nut Island; a new conduit to convey the South System wastewater from Nut Island to Deer Island (inter-island conveyance facilities); and a new outfall to discharge the treated effluent into the ocean. The initial implementation phase of the treatment plant construction program is early site preparation. Early site preparation includes the construction activity that can start before the completion of the on-island piers facilities. The planning for the facilities needed to provide secondary treatment and the early site preparation project are presented in four, stand-alone volumes:

Treatment Plant, Volume III

Inter-Island Conveyance System, Volume IV

Effluent Outfall, Volume V

Early Site Preparation, Volume VI

Volume VII, Institutional Considerations, identifies the permitting, program management, financing, human resources and regulatory requirements for constructing and operating the recommended facilities within the schedule entered by the Federal Court. The analysis includes a review of the court-ordered target dates and recommends the changes in the schedule that are deemed necessary.

Volume VIII, Public Participation and Responsiveness Summary, includes all comments and responses received on the draft documents as well as summary of the Public Participation Program.

As part of the Secondary Treatment Facilities Plan development, major decisions were made to select a wastewater treatment process; to size and locate conduits and pumping stations to convey wastewater and treated effluent to and from the Deer Island Treatment Facility; and to plan the initial site preparation program at Deer Island.

In evaluating the various alternatives, four broad categories of criteria were established:

- Environmental - which focused on air emissions, noise, traffic and marine resources, and measured the potential environmental impacts of each alternative;
- Technical - which focused on engineering issues such as reliability, flexibility, constructability, operational complexity, area requirements, staffing requirements, and power needs;
- Cost - which presented the financial investment necessary to construct and operate the various alternatives;
- Institutional - which assessed the differences among alternatives according to the time required for construction and the coordination required among a wide variety of public and private organizations and agencies. These criteria were used to select the recommended plan, which provides the most technically and environmentally sound, cost-effective and implementable alternative.

III. Commitments to Mitigation

1. Section 61 Findings By the MWRA on the Selection of Deer Island as the Site for Wastewater Treatment Facilities for Boston Harbor: Status Update.

The Section 61 findings which resulted from the 1985 Final Environmental Impact Report on Siting of Wastewater Treatment Facilities for Boston Harbor included a series of commitments to mitigation. The MWRA has initiated many programs to establish the systems and procedures to achieve the commitments made in the Siting Decision and the Secondary Treatment Facilities Plan. A summary of each mitigation commitment or the actual text (in ""), and progress in meeting those commitments follows.

A. Flow and Growth

"Recognizing the need for responsible management and being sensitive to the possible need for expansion of the new treatment plant, the MWRA made the following commitment with respect to flow and growth:

- o The MWRA will undertake all necessary and prudent planning and management initiatives to avoid overloading the Harbor Islands treatment plant.
- o The MWRA will not expand the treatment plant capacity unless or until it has implemented flow management techniques and has developed and implemented a program to avoid excess pollutant loading. These techniques and programs include:
 - Conducting infiltration/inflow reduction programs
 - Instituting water conservation programs that can reduce wastewater flows
 - Pricing of water and sewer services to promote the conservation of water, thus reducing wastewater flows
 - Controlling pollutant loads through pricing strategies and pretreatment programs
 - Controlling both flow and loads through regulatory controls, such as flow reduction programs to compensate for new connections
 - Developing monitoring and triggering programs to test the effectiveness of the flow management techniques and to provide the MWRA with the ability to determine when

planning for the MWRA's next increment of treatment capacity should be undertaken

If the MWRA determines, through its monitoring and triggering programs, that the flows and loading are increasing at rates higher than projected in the FEIR, it will take all necessary steps to plan, design, and construct ancillary facilities including (but not limited to):

- Flow control structures, such as on-line and off-line storage to minimize peak flows at the plant
- Septage treatment facilities to reduce pollutant loadings on the Harbor Islands Plant
- o If the ancillary facilities are insufficient to accommodate increased flow and loading and to prevent exceeding the design capacity of the Harbor Islands treatment plant, the MWRA will take all necessary steps to plan, design, and construct satellite treatment plants unless it determines it would be economically or environmentally infeasible to do so.
- o Notwithstanding the foregoing, the MWRA does not intend the adoption of the above commitments to require the postponement or cancellation of any capital program contained in the Authority's Fiscal Year 1986-88 capital budget that serves to eliminate an existing problem of sewage backups.

The purpose of these commitments is to confirm the MWRA's desire to establish a sound and rational program for assessing future capacity needs, to respond to public concerns on overloading and future system expansion, and to provide a framework within which additional capacity will be planned."

These commitments have been further formalized in the Memorandum of Understanding (MOU) between the Town of Winthrop and the MWRA (February 2, 1988). Under the terms of that agreement, the Authority will not expand the new wastewater treatment facility size beyond the design flow and loading capacities presented in the Final Secondary Treatment Facilities Plan, and any additional treatment facilities required in the future, such as filtration units, will be contained on the plant side of the established berm and separation area.

In order to control the wastewater flows influent to the future plant, the MWRA has developed an Infiltration and Inflow (I/I) Management Plan. While I/I management is primarily the responsibility of the local communities, MWRA has taken the lead in developing a program for the entire sewer service area which

will assist communities in identifying and controlling I/I. The I/I Management Plan is discussed under item III.K herein.

The MWRA has implemented and continues to develop several water conservation programs that can reduce wastewater flows. These programs include: a pilot program to install water saving devices for residential customers; a pilot intensive local public information campaign; a pilot program to install 2500 water saving toilets in municipal facilities; a successful campaign to change the State Plumbing Code to require that essentially all toilets installed after March 1989 use only 1.5 gallons per flush; and water conservation curricula for elementary and junior high school students.

The MWRA has also begun programs to shift pricing strategies to reflect the annual costs of services and encourage reduction of water use and wastewater flows. Communities in the service area have eliminated declining block rates for water services. The Authority plans to require contract water communities to pay fees that reflect the actual cost of the water and is establishing a technical assistance program to assist the remaining communities in achieving that goal. The MWRA is also implementing a sewer metering program (see below) with the goal of establishing sewer billing to the communities based on actual flows and loads.

The MWRA continues to expand and strengthen its industrial pretreatment program and other programs to reduce pollutant loadings to the treatment plant. The pretreatment program is discussed in detail in section III.K. The Authority is working closely with communities in developing complete information and appropriate pricing strategies for pollutant loadings from large users in each community.

Programs to reduce flows and loads through regulatory controls are also being implemented. The Authority has strengthened sewer use regulations to prohibit unnecessary Inflow and Infiltration and is requiring towns to implement I/I reduction plans. The Authority is increasingly requiring developers to show reductions in I/I to offset increases in flows from proposed new connections.

The MWRA is developing a complete sewer monitoring system to develop constant, comprehensive information on sewer flows. By the end of 1989, 150 interim meters will be in place and sending information to a central computer. This information will be used to ensure the accurate permanent placement of meters by the end of 1990. Information from the metering program will be invaluable in monitoring the effectiveness of I/I control programs, implementing sewer rate charges, documenting pollutant loadings, and developing a triggering system for planning future wastewater treatment facilities.

B. Commitments to Operation and Maintenance

Several issues were covered in the original commitments to Operations and Maintenance. Each of the commitments is listed below in quotes (""), with the update following each commitment.

"MWRA has already made clear its commitment to improved operations and maintenance by approving both a substantially increased operating budget and by authorizing significant increases in operations and maintenance is underscored by their adoption of the following assurances:

- o Review of Recurrent Budgets. Annual operating budgets will be carefully scrutinized to be certain that these budgets reflect not only a sound maintenance program for existing facilities but that the budgets reflect any new facilities expected to be in service during the budget year. The MWRA will link budget expenditures with performance indicators that reflect the efficiency and effectiveness of the maintenance programs."

Examples of such linkages include reduction of days the discharge is in violation of its permit or reduction in downtime of pumps due to unscheduled maintenance. The MWRA has increased Deer Island personnel 180% to 237 people, including 101 maintenance staff, and has increased expenditures for maintenance supplies and services 105% to \$1.4 million.

- o "Renewal/Replacement Expenditures. "More than \$100 million in construction projects have been initiated at the Nut Island and Deer Island treatment plants to replace much of the antiquated equipment at these plants. These upgraded programs are expected to be completed in 1989 and will contribute significantly to the reliability of the existing plant equipment. Capital budgets in future years will continue to reflect the important role that R/R plays in the maintenance of treatment facilities. The MWRA maintenance procedures will be modified at an early date to incorporate record keeping procedures that will provide a rational basis for R/R investment in future years."

Fast-track upgrade programs have included improvements in the sedimentation basins, remote headworks, pumping and power facilities and sludge thickeners and digesters. The Authority is now anticipating the initiation of the interim track (1990-1994) improvements on Deer Island including: sodium hypochlorite disinfection, gas burner and stack silencer replacement, and new personnel facilities.

- o "Review of Maintenance Procedures. Prior to the completion of the on-going upgrade program, the MWRA will initiate a review of its existing maintenance procedures.

Strengthened maintenance procedures will be designed including an aggressive housekeeping and preventive maintenance program. The procedures will be amended as new treatment facilities are constructed."

The MWRA hired a consultant to review existing maintenance procedures and design a strengthened system. Beginning in April, 1988 at Deer Island and July, 1988 at Nut Island, work order and maintenance scheduling systems were put into place. Current plans call for instituting equipment checklists and computerized preventative maintenance scheduling.

- o "Initiate Early Planning. To ensure that operations and maintenance considerations are included as an integral part of the planning for all new facilities, the MWRA will require that the plant's facilities plan include a preliminary plan of operations. The preliminary plan of operations will identify the additional or unique O & M requirements of the recommended facilities, including staffing and special training needs, manuals, special tools and workshops, and estimated budget considerations. This preliminary plan of operations will provide the MWRA with two to four years' lead time prior to completion of facilities to incorporate the maintenance requirements of new facilities into on-going maintenance programs."
- o "Adoption of Performance Indicators. The MWRA will adopt performance indicators into the agency's proposed management information systems that will permit the Authority to review on a regular basis the level-of-effort and the performance of the maintenance activities. Indicators such as plant performance, equipment availability, maintenance labor/expenditures, custodial inspection reports, spare parts inventory, and equipment age will be monitored to regularly examine the efficiency of the maintenance efforts. Additionally, the Authority will involve the community in reviewing maintenance programs to provide focus on issues of local importance."

Preliminary plans were included in the STFP EIR/EID for the "Maintenance of Plant Operations During Construction" and for operation and maintenance requirements such as staffing, special training needs and budget considerations.

Since completion of the EIR in mid-1988, the operation and maintenance mitigation requirements have been incorporated into the scope of work for the Program/Construction Management team, Kaiser Engineers, Inc. Task II.2 of the Kaiser Engineers contract provides for production of consistent design standards which promote efficiently operating facilities. Task V.2 provides an integrated plan of staff recruitment and training; describes facility stratum and initial operations; and clearly identifies

responsibilities and programs needed for successful and timely operations of newly constructed facilities. Task V.3 directs the P/CM to prepare a plan to maintain full service of existing facilities until replacement facilities are operational and to provide smooth transition to new operations.

In addition, during 1988 the Authority implemented a new, agency-wide Performance Management Review System (PMRS) that will improve overall agency performance, including plant operation.

C. Odor Control

The MWRA originally committed "to the construction of a treatment plant that will control odors so as to eliminate detectable odors off-site and to control odors as necessary to protect public health. Furthermore, the MWRA committed to the control of odors so as to minimize, to the maximum extent feasible, objectionable odors on-site. The type of odor control needed will be selected during the facilities planning effort. Sampling of the odor potential characteristics of the influent wastewater will be conducted as part of the facilities planning to provide necessary data to develop a program of source control and to size and select the odor control equipment".

The MWRA also committed to establishment of an odor panel "to routinely monitor for odor to ensure that no objectionable odors are occurring off-site. The panel will also respond to odor complaints received by the plant, by assisting in the investigation of the odor and recommending odor control techniques".

In the February 1988 MOU with Winthrop, the MWRA agreed to construct and operate the facility to control odors so as to eliminate detectable odors off-site and to control atmospheric emissions as necessary to protect the public health. During the design of the treatment plant, which began in August 1988, the odor control facilities will be specified. It is the responsibility of the Authority's Mitigation Agreements Compliance Manager, to track the design process to ensure that the odor control components of the design meet the odor control commitments.

During the summer of 1988, the MWRA conducted an Odor Monitoring Project at Deer Island. TRC Environmental Consultants, Inc. identified sources of odors such as digester gas, flaring operations, aerated influent channels, primary sedimentation tanks and diesel engines. Results of this study, including modeling data, can be utilized in future odor control planning.

Mitigation measures proposed in the Final STFP, and now incorporated as commitments into the plant design and early site preparation include:

- locating treatment operations having a high potential for odor production in the southern portion of Deer Island; the residuals area, which has the greatest potential for odors, is located at the southern end of Deer Island;
- excavation and disposal of the majority of the grit and screenings during the cooler months; should some of this excavation be required to take place during warmer months, special odor control procedures will be implemented;
- covering of grit chambers, primary clarifiers, and aeration tanks, as well as the treatment of off-gases to remove both odors and volatile organic compounds; utilize a two-stage treatment system, consisting of wet scrubbing and carbon absorption for controlling air emissions.

These and other odor control measures will be further studied during the early site preparation and conceptual design phases of the wastewater treatment facilities. The Lead Design Engineer (LDE) and all Project Design Engineers (PDEs or detailed designers) have been apprised of the Winthrop MOU and are required to address relevant features of the MOU in their designs. The LDE is responsible for ensuring that the provisions of all mitigation commitments are complied with in design documents.

D. Noise Control

The MWRA committed to "complying with all the legal standards of both City of Boston noise control ordinances and the Department of Environmental Quality Engineering. Because of the scale of the proposed plant, however, the MWRA is setting as a goal noise abatement that goes beyond simply adhering to the City of Boston Code. The MWRA has attempted to define, by the FEIR, what noise levels may be achievable and will examine means of noise abatement throughout the planning, design, and operation of the facility.

The MWRA further commits to the development of a program for avoiding noise impacts, the components of which shall be resolved during facilities planning but which shall include the following:

- o The establishment of an Acoustical Review Board. The Acoustical Review Board will include representatives from the community as well as engineers and MWRA staff.
- o The use of available and feasible noise control techniques, which may include such items as the evaluation of the acoustical characteristics of operational equipment and flexible scheduling of construction activities to minimize noise.

- o The establishment of necessary training and hiring practices to assume the best possible control of noise impacts.
- o The involvement of the community in the development of noise control programs and the participation of community representatives in those programs."

The MOU between the MWRA and the Town of Winthrop specifies noise limits for day and night hours during construction and subsequent operation of the treatment facilities. The MOU also provides a mechanism for establishing noise levels for extended workday hours or working on Saturday morning if necessary to meet Court-mandated milestones.

The MWRA's Program/Construction Manager is currently developing a noise compliance tool and standard contract language for the construction of the facilities which will incorporate the noise standards from the mitigation agreement with Winthrop. Overall management and coordination of noise mitigation at the Deer Island construction site will be the responsibility of a full time site manager as part of the MWRA's Program/Construction Management Contract.

Discussions with the Town of Winthrop are underway regarding a more detailed assessment of acceptable noise levels. A noise model of the Deer Island site has been proposed as a management tool for insuring that the combination of construction activities taking place on the Island will not violate agreed-upon noise levels.

E. Barging and Busing

In the 1985 Section 61 Findings, the MWRA committed to barging and busing of traffic associated with construction of the new plant. Barging would be used for transport of construction materials and all workers would be bused to the site up to a maximum of 28 busses (round trips) per day. The MWRA agreed to investigate using ferries to transport workers to the construction site.

The MOU between the MWRA and Winthrop placed more stringent levels of mitigation on worker and material transport. The MWRA has agreed that, during pier construction, no concrete or aggregate for concrete will be trucked through Winthrop. Once the piers are complete, the MWRA will limit truck trips through Winthrop. MWRA has agreed that, once the piers and early site preparation phase of construction are complete, it will provide the capacity to ferry fifty percent of the construction workforce to the site. The remaining workforce will be bused.

The MWRA will be soliciting bids in early 1989 for a Water

Transportation System operator to implement this aspect of the mitigation agreement. The Deer Island piers are under construction and are due to be completed by October 1989. Materials will either be barged directly from suppliers or transported from roll-on/roll-off piers at the Fore River Staging Area in Quincy and the former Revere Sugar terminal in Charlestown. Proposed sites for ferrying half the construction workers are: Marina Bay--Squantum Point in Quincy, Hewitt's Cove in Hingham, Beverly Street/No. Station and Rowe's Wharf. Plans are being formulated to bus early site preparation workers to Deer Island.

**F. Commitment on Trucking of Liquid Chlorine
(Interim Disinfection)**

The MWRA committed "to cease the trucking of liquid chlorine through the streets of Winthrop as soon as possible upon access facilities becoming operable and the transport of alternate disinfectant or barging of liquid chlorine being feasible."

Under the terms of the mitigation agreement with Winthrop, trucking of liquid chlorine for disinfection will cease and sodium hypochlorite will be barged into the Deer Island piers and stored on-site. Design of interim sodium hypochlorite facilities is due to be completed by February 1989 and is currently on schedule. A one-year construction period is anticipated. Elements of the interim disinfection equipment are being designed for possible reuse as parts of the new treatment facilities.

G. Relocation of the Deer Island House of Correction

The MWRA "determined that the Deer Island House of Correction must be relocated from Deer Island by those parties with jurisdiction over its operation and that such relocation must be deemed a mandatory mitigation measure."

Massachusetts House Bill #5384 was passed by the state legislature and signed by Governor Dukakis in July 1988. The new law clears the way for construction of new prison facilities for Suffolk County and the decommissioning of the Deer Island House of Correction. Decommissioning is scheduled for late 1991. The Commonwealth of Massachusetts as part of the Boston Harbor court action, is under Federal Court order to remove the prison by December 1991.

H. Further Measures

Additional suggestions by the Secretary in the original (1986) Certificate included:

- "1. The "Sewer Bank" concept be further explored and feasible programs developed to eliminate excess flow

and accommodate new connections." [See Section III.2.K]

- "2. Accommodate major growth within the service area through satellite plants." [See Section III.2.K]
- "3. Continued and strengthened programs to monitor flows to provide sound data to gauge the effects of flow management." [See Section III.2.K]
- "4. Implement odor panel and formal odor complaint response at existing facility." [See Section III.1.C]
- "5. Consider real time monitoring of odors, perhaps using hydrogen sulfide as an indicator." [See Section III.1.C]
- "6. Consider development and implementation of a monitoring program for VOCs and other air toxics in the wastewater stream and in the ambient air." [See Section III.2.J., K. and V. Appendix]
- "7. Recommend implementation of an acoustic Review Board to monitor and respond to noise complaints at existing facility; and supplement such a noise program now and at the new treatment plant with periodic noise monitoring." [See Section III.1.D.]

2. Final Secondary Wastewater Treatment Facilities Plan (May 1988)

The Certificate of Secretary of Environmental Affairs on the STFP indicated that several issues required further attention. Commitments regarding those issues are described below.

I. Commitments on the Effluent Outfall and Water Quality

The Secretary's Certificate directed that investigations should take place to determine if significant mitigation is available by use of an effluent discharge location beyond the one proposed in the STFP (Site 5).

A lengthy and complicated evaluation process took place to study impacts of the various proposed outfall sites. While the MWRA is confident that this process yielded a suitable outfall site, the MWRA is also gathering additional information for consideration during final effluent outfall design. The MWRA's commitment to perform additional, ongoing study and analysis regarding the impacts of the outfall, and to retain some flexibility of outfall and diffuser design to allow new information to influence final design is described below. The process used to select the outfall site is also summarized in a subsequent section.

1.0 Final Design of the Effluent Outfall

The MWRA has selected an area approximately 7.9 to 9.4 miles east-northeast of Deer Island as the location the effluent outfall diffuser. Concern has been voiced for not studying a discharge site farther offshore. In fact, sufficient evidence exists to conclude that more distant sites would not provide a dramatically greater measure of environmental protection. Measurements of temperature and salinity near Site 6 (a proposed more distant site), taken as part of an analysis of nutrients in Massachusetts Bay, show that this area is similar to the recommended diffuser area. Currents, salinity, and temperature were measured east of Site 6 by the U.S. Geological Survey around the same time as the MWRA field program gathered data nearer to shore. From the preliminary results of this program, it appears that the tidal and residual currents are of similar magnitude to those measured around the recommended diffuser location. Future monitoring programs will provide further information to confirm or refute these results.

In making the decision about the outfall diffuser location, MWRA considered existing data and the results of its own oceanographic studies. The studies and criteria upon which the decision was based were developed with significant input from regulatory agencies, scientists, and citizens. MWRA is confident that the planned outfall tunnel and diffuser and the general location of the diffuser provide best combination of favorable conditions which can be reached with reasonable means.

Precise location of the diffuser structure within the area described in the Secondary Treatment Facilities Plan will be carried out during the final design phase. Final diffuser location decisions will be based upon the results of ongoing geological investigations and detailed design of treatment facility hydraulics. One season of successful test borings and geophysical work has been completed and has yielded data indicating desirable conditions for tunnel boring along a route to the proposed outfall diffuser area. An additional season of geological data gathering following the winter of 1988-89 to provide additional input to tunnel and diffuser design and location.

Findings to date indicate that conditions are favorable to locate the diffuser structure within the area described in both the Secondary Treatment Facilities Plan and the Boston Harbor Wastewater Conveyance System Final Supplemental Environmental Impact Statement produced by the U.S. Environmental protection Agency, Region I.

Additional information for precise diffuser location and design, and for subsequent diffuser performance evaluation, will result from MWRA's Harbor Study Program. MWRA has committed funds and

personnel to continue to examine existing data on Boston Harbor and Massachusetts Bay and to initiate long term biological and chemical monitoring to describe existing conditions and evaluate the impacts of the treatment facility discharge. Monitoring will take place in locations throughout Massachusetts Bay including areas seaward of the diffuser location. Protocols for this monitoring are being developed in cooperation with concerned agencies and academic institutions including MEPA and Massachusetts Office of Coastal Zone Management.

Data resulting from the operation of pilot treatment plants to simulate the new treatment facilities processes will be used throughout the design process, including the design and location of the outfall diffuser. Diffuser location, as recommended by the Secretary, will remain flexible enough to allow for modifications if the results of future pilot plant studies justify modification. Factors to be considered in evaluating potential modifications are; environmental impact, ability to construct, schedule considerations, and cost. Physical modeling of the outfall and diffuser will also be undertaken, as suggested by EPA's Final Supplemental Environmental Impact Statement, to refine design and location.

MWRA is proceeding with planning and design as described in the facilities plan and is committed to incorporating information resulting from the previously mentioned sources in final design decisions to the maximum feasible extent.

2.0 Siting of Effluent Outfall

The effluent outfall consists of a deep rock effluent tunnel originating from a vertical shaft at Deer Island and terminating at a diffuser structure to be located in an area Massachusetts Bay between 7.9 and 9.4 miles east-northeast of Deer Island. The preliminary plan for the diffuser structure calls for 80 vertical riser shafts connected to the effluent tunnel spaced along the final 6600 feet of the tunnel. The riser shafts will disperse treated effluent into the ocean environment through discharge ports at the ocean floor.

Determinations of effluent outfall design and location considered physical, chemical, and biological oceanography, geology, construction methodology, and cost. The effluent discharge area selected represents the most favorable mix of outfall site characteristics. It is well within the large-scale circulation patterns of Massachusetts Bay and therefore provides the most robust long-term mixing. It is an area of limited potential sediment accumulation and thereby avoids problems associated with concentrating pollutants in bottom sediments. It is located away from intensely utilized near-shore resources, avoiding the potential for disruption. Finally, the location for the diffuser can be reached by a gravity flow effluent tunnel within a

timeframe consistent with the spirit of the court-ordered target dates for treatment facilities construction.

The environmental impacts of constructing the effluent outfall will be minimal. The effluent tunnel will be bored through rock below the ocean floor with no effect on the marine environment. Impacts on tunnel boring will be limited to noise and traffic on Deer Island, and the possible need for disposal of tunnel wastes consisting of rock. These impacts will be effectively mitigated through the construction mitigation commitments (described in section 1 of this document) made by MWRA and the disposal or reuse of tunnel wastes using environmentally accepted methods.

The diffuser construction will entail a small degree of disruption of the benthic habitat; however, the impact will be short in duration and rapid recolonization of the area adjacent to each riser is expected. The diffuser structure will have minimal impacts on such commercial activities as bottom trawling since the area is not actively trawled by commercial fishermen due to lack of bottom conditions favoring trawling and conflicts with fixed gear (e.g. lobster pots). The discharge of wastes through the diffuser during facility operation are expected to have minor impacts on the marine resources in the vicinity of the diffuser. Suspended solids contained in both the primary and secondary effluent discharged will settle. However, the amount of sediment buildup will be significantly less than tolerable levels. The potential for bioaccumulation of toxic materials in the sediments within the study area is considered to be small because of the dispersive nature of the environment, and thus would not adversely affect the benthic environment.

Many commentators questioned the methods and results of the oceanographic studies leading to the location of the outfall diffuser structure. The physical oceanographic studies performed for MWRA during the diffuser siting process demonstrate that the outfall diffuser is well within the offshore region where vigorous, variable currents will provide adequate dilution and transport. Field observations were used to calibrate and validate a numerical model of pollutant transport. The model was used by the MWRA to predict likely concentrations of contaminants in Massachusetts Bay resulting from the proposed discharge.

The model demonstrated that the recommended discharge would be sufficiently diluted to meet state water quality standards and most of the EPA water quality criteria. With secondary treatment, 55 of 60 criteria are likely to be met. Those pollutant criteria which were likely to be exceeded fall into two categories: chemicals for which the exceedence was due to high concentrations already existing in the environment, and chemicals which, if they are present in the effluent, have such low concentrations that they could not be measured in the MWRA sampling program.

The MWRA results were confirmed by EPA, as documented in the Final Supplemental Environmental Impact Statement on the Boston Harbor Wastewater Conveyance System. The EPA screening analysis, which included a site beyond the recommended area (Site 6), showed that no significant benefit could be gained by discharging at the more distant site.

The proposed discharge will yield considerable environmental benefit over the present situation, even without the improved treatment which will be provided by the new Deer Island treatment facilities. The initial dilution of effluent will be greatly increases because of the greater depth of the outfall. Improvement can be expected throughout Massachusetts Bay. As an example, the effluent reaching Nahant from the proposed diffuser site will be nine times more dilute than the effluent reaching Nahant from the existing primary treatment facility outfall in President Roads.

J. Commitments on the Pilot Plant

The Secretary's Certificate pointed out the importance of pilot treatment plant operations to confirm the performance of planned treatment processes and better estimate environmental impacts. The Authority commits to conducting a pilot program that at a minimum, evaluates:

- effectiveness of critical aspects of the secondary treatment process including the anaerobic selector;
- partitioning of metals and priority pollutants into secondary effluent and sludge;
- sludge production rates;
- potential air emissions including and odor impacts;
- hydraulic evaluation of stacked clarifiers.

The current plans for piloting the wastewater treatment process involve two phases. The first phase, to be implemented beginning in late 1988, is a traditional pilot program that utilizes trailer mounted treatment units. This interim pilot program will confirm the basic sizing, loading criteria and anticipated performance of the pure oxygen activated sludge system and the anaerobic selector. The data developed in late 1988-early 1989 will be incorporated onto the conceptual design of the plant. The current schedule indicates that the interim pilot plant will be run for several months to capture both warm and cold weather data, and high and low groundwater periods.

The interim (trailer mounted) pilot plant may not have mechanical surface aerators of the same type proposed for the full scale

plant, thus direct correlation of air emissions data from the pilot plant with the future full scale facility may not be possible. Piloting of the secondary process may provide good qualitative information on odors and air emissions expected from The secondary plant, but may overestimate quantitative predictions. This information can be used with manufacturers' performance data for the odor and emissions control equipment, to develop emissions estimates.

The second phase of the pilot program is to design and build two parallel pilot secondary treatment trains at the 1-2 mgd scale, to be incorporated into the full size plant as a permanent testing, training and research facility. This facility is currently in the conceptual design phase. Based on the current schedule, data from this pilot facility will not be available until mid-1990. At that point the data generated will be used to confirm the detailed design of the secondary plant, and emissions control equipment. The permanent pilot plant will be able to physically model the stacked clarifiers, whereas as the interim pilot plant will not, due to the excess time required for design and fabrication of stacked clarifier units. Some mathematical modeling of the stacked clarifier inlet-outlet dynamics may be undertaken early in the conceptual design phase, however.

K. Commitments on Source Control

1.0 Introduction

The Secretary's certificate emphasized the importance of reducing infiltration and inflow and toxics in the wastewater stream.

It is the commitment of the MWRA, to the extent practicable and through means legally available to the Authority, to minimize the wastewater flows and waste loads (both organic and toxic) input to the new treatment facilities. The MWRA has initiated and is committed to continuing aggressive programs that address both the control of flows (Infiltration/Inflow Management Program) and control of loads (Toxics Control and Reduction Program).

2.0 Infiltration/Inflow (I/I) Management Program

In April 1988, The MWRA Board of Directors adopted a Preliminary I/I Management Program Plan. The preliminary plan addressed those elements described below.

The system conveying wastewater to the new treatment facilities consists of more than 5000 miles of pipes. The vast majority of the pipes are owned by the communities served, with some 230 miles of pipes owned by MWRA. Water leaking from the ground into these pipes greatly increases the volume of wastewater requiring treatment.

Control of the leakage of clean water (infiltration/inflow) into the sewer system is the responsibility of the MWRA, DEQE, and the MWRA sewer service area member communities. As part of the I/I program MWRA is developing a long-term policy which will basically states that no excessive I/I be allowed to enter the MWRA sewer system or its tributary systems. The policy will list the management approach which the MWRA will use to meet this objective and the responsibilities of the communities.

The policy is being developed in conjunction with a Memorandum Of Understanding with DEQE which will spell out the responsibilities and authorities between the MWRA and DEQE, as well as determining reduction standards.

Two staff positions have been budgeted and filled as of September 1988 for the I/I Management Program. Additional staff will be budgeted and hired as the program is developed.

2.1 Determination of Excessive I/I

The MWRA will implement various projects and programs to quantify and locate sources of I/I. These include:

- A sewer system metering project to isolate flow from each community and determine its flow components.
- The continuation of the development of the community sewer system computer modeling program, developed by DEQE, which compares the accuracy of I/I studies performed by various communities and identifies areas for improvement.
- In-line television inspections of MWRA interceptors to identify illegal connections and other sources of excessive I/I.
- An Engineering Assistance Program which assist the member communities in implement the required I/I engineering studies and to comply with DEQE regulations.
- A Technical Assistance Program whereby MWRA will be available to assist communities in developing proper sewer maintenance programs.

2.2 Management and Control of Excessive I/I

The MWRA will implement various programs to manage and control excessive I/I. These include:

- An I/I Management Program, including preventive maintenance within the MWRA sewer system, monitoring within local systems to support programs to reduce local

I/I flow; and enforcement through the Municipal Permit Program.

- A Construction Assistance Program. Assist communities in implementing proper sewer maintenance programs; applying for DEQE grant funds.
- A Public Education Program to educate ratepayers as to the importance of implementing I/I reduction in their communities.
- An Economic Incentive Program. Develop system of charges which bases a community's cost for wastewater treatment services on the community's actual contribution of sewage, including I/I.

Additional detail on these elements of the I/I Management Program are found in the Appendix Response to Comments.

3.0 Toxics Reduction and Control Program

The Authority has implemented a multi-faceted effort, the Toxics Reduction and Control (TRAC) program to minimize and control the inflow of hazardous pollutants, toxics, and heavy metals into the MWRA sewer system. The TRAC focuses on four major sources of contaminants: industries within the MWRA service area, local landfills and the resultant leachate, septage from user communities, and household hazardous wastes.

3.1 Industrial Pretreatment Program

The Industrial Pretreatment Program includes inspecting, monitoring, and permitting the nearly 6,000 industries located within the MWRA's sewer service area (43 communities including the City of Boston), and all necessary enforcement actions to ensure compliance with all applicable State, Federal, and MWRA sewer use regulations.

Inspection Activities

Initial inspections of all known industries within the MWRA sewer service area have been conducted to date. Follow-up inspections, including routine and special inspections, are performed on many of the industries initially inspected. In 1987, 465 industrial inspections were conducted. The purpose of the inspections is to ascertain the nature of the activity performed at the facility, the raw materials used, products and services produced, and the unit processes and operations employed; obtain samples of wastes if necessary; ensure that the facility has a discharge permit or that a permit application has been completed. Permit information, such

as location of discharge points and quantity of wastes discharged, can be verified during an inspection. Inspections can also identify sources of inflow, such as non-contact cooling water, and excessive uses of water.

Monitoring Activities

This aspect of the program includes monitoring of contaminants in industrial waste discharges, NPDES permit monitoring, treatment plant and CSO sampling, soil sampling, beach sampling, and verifications of industrial discharges and connections. Monitoring provides the basis for enforcement to eliminate unacceptable concentrations of toxics and other harmful substances. Monitoring is done to ensure compliance with permit conditions, and to identify substances in the sewer system which may cause problems at the treatment plants or violation of a NPDES permit condition.

Permitting: Municipal and Sewer Use Discharge Permits

Municipal Discharge Permits are issued to each of the 43 member communities on a yearly basis. Each such permit requires the development and implementation of an I/I reduction program, a User Charge System, and a Municipal Sewer Ordinance. Sewer Use Discharge Permits are issued to each sewer user discharging industrial wastes to the Authority sewer system regardless of size, type or volume of discharge. Permits are issued to three categories of sewer users. The issuance of the Sewer Use Discharge Permit does not necessarily mean the industry is discharging an acceptable waste. The permit could contain specific corrective remedial conditions as set forth by the Authority that the industry must meet within a designated time frame. Also, the permit could clearly establish discharge violations in support of anticipated enforcement actions. It is estimated that 1500 new user permits will be issued by December, 1988.

Compliance and Enforcement

The inspection, monitoring and permit activities provide information necessary to determine initially whether any enforcement actions are required. New Sewer Use Rules and Regulations promulgated May 1, 1987 have broadened the scope of MWRA's enforcement powers. Enforcement actions range from informal meetings with the offending companies to legal actions. The results of past actions have been civil penalties ranging upward of \$600,000 and agreements for judgements mandating adherence to strict compliance schedules.

Other elements of the TRAC program include:

3.2 Landfill Leachate

Certain current regulations allow that sanitary landfill leachate be discharged into local sewer systems if the leachate meets certain quality criteria. The TRAC program includes an effort to periodically sample leachate from landfills to identify the type and concentration of any toxic constituents and to develop appropriate pretreatment programs and compliance measures.

3.3 Septage Sites

This program is intended to reduce the input of pollutants to the MWRA sewerage system from Septage Disposal Sites through increased inspection and monitoring activities. These activities consist of two major components: overseeing municipal septage-site operations and monitoring each septage site to ensure that MWRA regulations are being met and that illegal dumping does not occur.

In addition to reducing the volume of toxic waste entering the MWRA system, these activities will help to lower the overall cost of sewerage service to member communities by excluding septage received from non-MWRA communities.

3.4 Non-Industrial Source Control (household hazardous waste)

This program consists of two elements. A public education program will be targeted at the 43 communities that comprise the Authority's sewer service area. The program will define what household hazardous waste consists of, describe problems associated with improper disposal of these wastes, and identify substitute materials. The second element is a monitoring program to quantify what percent of all toxic wastes input to the sewer system is represented by household hazardous wastes. In addition, new Municipal Discharge Permits require that the community describe its program for controlling the discharge of household hazardous wastes to the sewer system.

L. Status of On-Island Residuals Treatment

The Secretary's Certificate requested additional clarification of the potential residuals facilities to be sited on Deer Island. In September 1988, the Authority's Board of Directors voted to reduce the number of long term residuals management options being evaluated, and carry a small number of the most promising options for further analysis and completion of the residuals facilities planning and environmental review process. There are four

processing site/technology options involving three sites that are recommended for further analysis. The sites include the Fore River Staging Area (FRSA) in Quincy, Spectacle Island, and the Stoughton site. All processing options include sludge digestion and thickening only, on Deer Island. The options of composting and/or combustion on Deer Island were recommended to be eliminated at this point due to limited available space on Deer Island, and anticipated difficulties associated with permitting a thermal processing facility on Deer Island due to the presence of the air emissions source represented by the future wastewater treatment plant. In addition, if composting were implemented on Deer Island, there would be insufficient space available for sludge digestion, thus eliminating a valuable energy source to the plant, methane gas from digestion. The Authority's recommendations are currently undergoing public comment and await the Secretary's response the recommendations in light of those comments.

M. Accelerated Construction

The Secretary's Certificate requests that the water quality impacts of an accelerated construction schedule be addressed, in addition to the secondary noise and traffic impacts of such a plan. Effects of accelerated construction on interim residuals processing also need to be addressed.

MWRA, as instructed by federal court order, developed an accelerated schedule for the construction of the Deer Island Secondary Treatment Facilities. Upon completion and examination of accelerated schedule options, the MWRA Board of Directors decided to proceed with an accelerated construction schedule. The accelerated schedule, described as Alternate Plan A in the Secondary Treatment Facilities Plan, provides for the concurrent construction of primary and some part of the secondary treatment facilities. This results in the opportunity to provide primary treatment for 100% of the flow in 1995 as planned and secondary treatment for 20% of the flow in 1996, with 100% secondary treatment in 1999. This option provides an advantage over the original base plan which would provide primary treatment in 1995, but no secondary treatment until 1999.

Implementation of the accelerated construction plan requires that several concurrent activities be carried out. Existing primary treatment facilities must remain in operation during construction of the new secondary treatment facilities while modifications to the existing plant take place. Residuals facilities must be able to handle roughly 30% greater volume (over the original plan) of sludge produced in 1995 by the alternative plan. The Deer Island House of Correction must be decommissioned by 1991 to allow its demolition by 1992.

MWRA has determined that all of these considerations can be met. Engineering investigations have concluded that difficulties in maintaining existing primary treatment operations can be overcome. Operation of planned interim residuals processing beyond 1995 in conjunction with long term composting facilities will provide the additional residuals handling capacity required. Legislation to provide for an accelerated design-build process for a new prison has been approved by the State Legislature and provides for decommissioning of the House of Corrections by the end of 1991. Movement of the prison is also mandated by federal court order.

Construction impact changes resulting from the accelerated schedule are minimal. The potential exists for an increase of approximately 260 workers more than the base plan for the period 1993-1994 resulting in an acceptable increase in traffic which does not exceed peak estimates reported for the base plan. The overall worker peak, which occurs in 1992, is unaffected by the accelerated plan.

Providing partial secondary treatment at an early date offers significant environmental benefit, with enhanced levels of removal for organic materials, solids, and toxics. Providing some secondary effluent will provide a better effluent quality for discharge through the new outfall, alleviating some concerns raised regarding the outfall siting. Early use of secondary treatment does have the consequence of increased toxics levels in residuals at an early date. Investigations by the MWRA residuals program and contractors have indicated that several options exist for handling the increased residuals volume and quality changes through the interim residuals program.

MWRA is committed to following the accelerated schedule described and to exploring reasonable and attainable schedule enhancements which lead to environmental benefit and decreased costs without sacrificing mitigation plans or plant reliability. Final decisions on the details of the accelerated construction plan will be made when a critical path schedule for the plan is complete and when the court and all parties including the regulatory agencies are satisfied with the benefits and impacts of the plan.

N. Commitments on Hazardous Materials and Waste Disposal

The Secretary's Certificate states that hazardous materials and any proposals for remediation of contamination must be addressed. Preliminary investigations of Deer Island and supporting water transportation facilities sites indicates the potential for hazardous materials to be present. Materials on Deer Island include asbestos in existing structures and the potential for limited areas of soil contaminated with petroleum products. Materials at the water transportation facilities include asbestos

in existing structures and potential petroleum spills. MWRA has performed or is in the process of performing 21E type investigations of all of these sites. Investigations include comprehensive sampling programs developed with and approved by the Massachusetts DEQE.

The current status of the Deer Island investigation is that all historic research has been performed and field sampling is underway. Any remedial action required on Deer Island will be undertaken as part of the Early Site Preparation construction phase prior to major earth-moving and demolition efforts. Investigations at other sites are largely complete and remediation plans are being developed.

MWRA is committed to removing or controlling and proper disposal of all hazardous materials encountered in the construction of the Deer Island Secondary Treatment Facilities and supporting facilities. MWRA seeks to protect its workers, contractors' personnel, and the public from hazardous materials encountered during the treatment facilities project.

Disposal of existing non-hazardous wastes currently located on Deer Island will largely be handled as part of the Early Site Preparation construction phase. There are three types of waste to be disposed of: grit and screenings, non-biodegradable demolition materials, and construction wastes.

Grit and screenings consist of materials which have been removed from the sewage flow and landfilled on Deer Island over the last twenty or so years. This material will be moved to clear areas which must be regraded for future construction. MWRA proposes to place the material in a secure landfill constructed in the southern landform on Deer Island. This landfill will be solely for the existing grit and screening on the Island, with the possible addition of a limited quantity of fixed scum. The landfill will be designed and permitted according to DEQE standards.

Non-biodegradable demolition materials consist of concrete, reinforced concrete, stone, and asphalt pavement which originates from existing structures and roads on Deer Island. Approval has been granted to MWRA from DEQE/DSWM to incorporate this material in the large landform to be constructed as a barrier on the northern portion of Deer Island.

Organic demolition and construction wastes consist primarily of wood, plaster, and other building and packing materials. MWRA is currently evaluating the possibility of establishing a permitted demolition waste landfill on Deer Island to dispose of this waste. Constraints of space, timing, and cost affect this evaluation. If landfilling on the Island is not deemed feasible,

transport to an approved demolition waste landfill will be utilized for disposal.

MWRA is committed to disposing of wastes in an environmentally sound fashion and to utilize, wherever feasible, disposal on-site to minimize cost and transportation impacts, and to avoid filling valuable landfill space elsewhere whenever possible.

O. Utility Supply

DEQE raised several questions regarding the Authority's plans for power supply to the wastewater treatment facility, primarily in the areas of timing of various power supply installations, permitting of new sources, and technical questions regarding power supply sizing and emissions. These questions and the Authority's responses are included in the Appendix attached to these Findings, Response to Comments.

An additional volume covering the utilities for Deer Island facilities (Supplement to Appendix H, Volume III, Off Island Utility Supply) has undergone public review. Comments on this volume will be responded to in a separate document.

IV. Summary of Impacts and Findings of Limitations of Impacts

The MWRA finds that the environmental impacts resulting from the construction of the Boston Harbor wastewater treatment facility are those impacts as described in Draft Environmental Impact Report, Secondary Treatment facilities Plan, elaborated on and refined in the Final Environmental Impact Report and commented upon in these G.L.C 30, Section 61 Findings.

The MWRA further finds that its planning and environmental review for the wastewater treatment facilities on Deer Island, and its commitment to the mitigation measures set out in the Commitments to Mitigation section of these G.L. C 30, Section 61 Findings constitute all feasible measures to avoid or minimize the environmental impacts described.

Realizing the complexity of the proposed wastewater treatment facilities, and that technological changes are likely to take place during the decade of design and construction, MWRA commits to inform MEPA of inevitable significant changes in the project as they occur.

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V. APPENDIX: Response to Comments

INTRODUCTION

As requested by the Secretary of Environmental Affairs in his Certificate on the Final Environmental Impact Report for the Deer Island Secondary Treatment Plant, the MWRA has prepared this response to comments document as an appendix to the update on the Section 61 findings and mitigation commitments. Numerous comments were submitted on all eight volumes of the Final Environmental Impact Report and Facilities Plan and the associated appendices.

Comments and responses have been grouped by topic. The grouping of these comments is based on discussions with the Chairman of the Facilities Planning Citizens Advisory Committee (FPCAC) and others about issues that continue to be a concern to the public and officials. This grouping should facilitate review of the comments and responses and the tracking of issues through the design process.

Many of the comments submitted duplicate other comments received. This document includes comments that are representative of similar comments. The complete listing of comments submitted can be found on page iii.

The MWRA expects this document to be noticed in the Environmental Monitor in December for a 30 day comment period. The MWRA is also preparing a separate response to comments and Final Supplementary EIR on the supplement to Volume III Appendix H, Off-Island Utility Supply. This document will provide an update of utilities planning for the treatment facilities and will be noticed for public review.

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Comments on Final Secondary Treatment Facilities Plan submitted
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Environmental Protection Agency

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TREATMENT PLANT DESIGN & CAPACITY

INTRODUCTION

The Secondary Treatment Facilities Plan and EIR provides a conceptual description of the Deer Island treatment facilities. The conceptual design phase of the project is now underway, providing an overall design for the entire treatment facilities. The conceptual design will then be developed into detailed final designs for each component of the new facilities.

Comments on the treatment facilities focused on the capacity and design. Concerns about the growth in the service area and the capacity of the facilities to treat future wastewater flows were voiced. The treatment facilities will be designed to meet the projected needs described in the STFP. The MWRA, as a provider of water and sewer services, cannot directly control growth in the service area. Monitoring of the sewer service area flows can provide predictive planning information which will indicate when growth could become a problem. This monitoring will help communities and regulatory agencies anticipate when growth control measures or construction of additional capacity should be undertaken. The MWRA has agreed that no expansion of the Deer Island facilities will occur outside of the separation berm area, effectively limiting the size of the treatment plant to that described in the STFP.

Several other specific design comments are addressed in the following section.

COMMENTS AND RESPONSES

FPCAC

COMMENT

There should be a revisiting of the Section 208 and 303e Plans (mandated by the Clean Water Act). These updated plans should be aggressively enforced. Present and future wastewater treatment needs must be met through adherence to wastewater treatment plans tied to land use plans. Following these plans can improve future acceptance of satellite treatment plants.

RESPONSE

Section 208 and 303e plans are the responsibility of The DEQE/Division of Water Pollution Control. Land-use planning is mostly performed at the local level through planning boards and City or Town government and would be difficult to integrate with MWRA wastewater treatment planning without a regional form of government.

COMMENT

There is a need for a flow and loads tracking/trigger system. Not only the agencies, but the public should be able to assess if flows and even more important loads, are exceeding the rate of growth allowed in the facilities plan.

RESPONSE

The flows and loads tracking/trigger system will consist of flow monitoring (both at the plant and at up to 150 collection system metering points) by the MWRA and compliance monitoring by the regulatory agencies. The MWRA cannot completely control rate of growth but should be responsible for planning to meet growth needs. For example, should monitoring predict that design capacity will be exceeded prior to 2020, say by 2010, then flow reduction strategies or possibly new facilities, presumably satellite plants, will be planned to be on-line by that date.

COMMENT

In portions of the South System, the storm runoff from storms greater than the one-year/six hour storm may cause backups in the MWRA interceptor sewers which may result in sewer surcharging. The CAC disagrees that this problem should be considered independently of the facilities plan. An overall plan should consider the total system flows. There should be a comprehensive solution to controlling all storm and groundwater flows. The infiltration and inflow control program must be an integral part of the facilities plan.

RESPONSE

It is true that storm runoff (and storm related inflow) from storms greater than the one-year/six hour storm may cause backups

in the MWRA interceptor sewers and may result in sewer surcharging in the South System. The extent and duration of surcharging will be dependent on the groundwater conditions and wastewater flows at the time of the storm. The Nut Island headworks facility, the inter-island tunnel and the South flow pumping station have been designed considering the total system flow, to minimize the probability of system surcharging. The design incorporated the best available data on existing and proposed infiltration/inflow in the South System and assumed a fair amount of I/I reduction. As more information becomes available from the ongoing South System flow analyses this data can be incorporated into the final design, however, it is not, and has never been within the scope of the facilities plan to undertake an entire South System I/I program nor to develop a comprehensive solution to control all storm and groundwater flows in the South System.

COMMENT

The facilities plan only projects rates to 2020. There should be at least a qualitative discussion of projected trends after that date. The committee questions whether the impacts of "less than best case scenarios" have been considered.

RESPONSE

The fact that the MWRA has projected rates out 30 years is very unusual and quite speculative. Further projections at this time are not recommended for the following reasons:

1. The MWRA capital, or even strategic plans do not extend that far into the future.
2. Assumptions on inflationary costs would be highly speculative.
3. We have no knowledge of emerging new technologies or future Federal and State requirements.

DEQE

COMMENT

From Volume III, Appendix I, Water Supply. The discussions in Volume III and this appendix does not adequately respond to DWPC's prior comments relating to the assessment and impact of the 2 mgd of peak potable water needs for the new plant. We had requested that the EIR specifically discuss impacts on the overall MWRA system and its relationship to the system's safe yield and the recently implemented water conservation programs.

RESPONSE

The STFP does not address directly the overall impact of the 2 mgd. Deer Island potable water supply with the overall MWRA system, relationship to safe yield, and recent water conservation programs. The preparation of the report did include

communication and cooperation with the MWRA's water supply and engineering staff. The MWRA has separate planning studies for the water supply and water system and based upon our discussion with the MWRA staff, we anticipate that they will incorporate the Deer Island demands into those studies. Design of the new treatment plant will seek to minimize the use of potable water by using plant effluent wherever feasible.

COMMENT

Volume III, pages 11-88: The report states that new site storm drainage can be designed and constructed to include the storm drainage from the pier facilities. Since DWPC is requiring the issuance of surface water discharge permits for the piers site drainage, the MWRA may wish to keep the overall site drainage separate from the permitted pier storm drainage system.

RESPONSE

This is a valid point which will be addressed during final design.

David Graber, Winthrop Consultant

COMMENT

Why is the "1 hour, 100 year" storm proposed (Volume III, p.11-88) for the design of the storm drainage system?

RESPONSE

Your comment regarding the design of the drainage systems is valid. The final design of the drainage system and sizing of the drain pipes will be based on a storm event with an appropriate time of concentration and return frequency.

New England Aquarium

COMMENT

What will be plant performance during periods when unusually high (i.e. greater than anticipated or projected) amounts of toxics enter the system? The Final Facilities Plan states that oxygen aeration systems have a proven track record in successfully handling large variations in organic loadings (volume III, p.10-81). What about metals and chlorides? Can the oxygen activated sludge system rebound from an infusion of these chemicals?

RESPONSE

As noted in Volume III, p.10-81 "The plant (Southeast Plant in San Francisco) has also exhibited considerable resiliency to high chloride concentrations. Chlorides normally average about 1100 mg/l. During a six day period in early 1987, chlorides spilled to over 5700 mg/l and were greater than 4000 mg/l for three days in succession. Effluent BOD never exceeded 45 mg/l,

and reduced to less than 20 mg/l within two days of the return to normal chloride concentrations".

An incident of unusually high amounts of toxics (e.g. metals) which would significantly affect the performance of the activated sludge system is extremely rare in a combined sewer system which receives flows averaging 480 mgd. The large flows and the effects of the combined system tend to dilute "shock loads" entering the system.

Should an unusually high concentration of toxics enter the treatment plant, it is expected that an oxygen or air activated sludge system would exhibit similar reaction characteristics.

David Standley, Quincy Consultant

COMMENT

While the planning period for this project extends only to the year 2020, and a 1.1 foot sea level rise may be quite appropriate for the planning period, this facility and its outfall will be in existence and operation for many decades further. In the final design for the facility, hydraulic grade lines should be reassessed against a 100 year planning horizon. Reliable operation without major future interruptions or major facility reconstruction should be assured by setting the facility elevation and the hydraulic grade lines consistent with that projection.

RESPONSE

Assuming the estimated average rate of sea level rise of 0.014 feet per year extends to the year 2100 the estimated elevation of the 100-year flood level at Deer Island against which the plant should be designed would be 18.1 ft. as opposed to 17 ft. used in the facilities plan.

Present trends in flood elevations and the impact of raising the plant about one foot, if necessary will be reevaluated in the conceptual design.

COMMENT

Volume III, p.11-36, Alternative II, which would limit the north main pumping station to only five operable pumps for thirty days presents a significantly greater risk of system backup and overflows than does Alternative I. Alternative I is also preferable from the standpoint of long-term flexibility. Therefore, it is urged that the Secretary find Alternative I to be the environmentally preferable alternative.

RESPONSE

The facilities plan presented two alternatives for modifications to the north system facilities leaving either alternative as a viable option.

Alternative II has been revised to include a cross connection of the forcemains to allow any pump to discharge

through either forcemain, making each alternative equally flexible.

Selection of the preferred alternative will be determined during conceptual design.

EPA

COMMENT

Volume V, Appendix BB. The results of the chlorination-dechlorination tests may indicate the need for dechlorination facilities at the new plant. This has not been discussed in the appendix or in Volume III and should be included in your final plant design.

RESPONSE

Volume V, Appendix BB presents the results of the toxicity testing, only. Volume III on page 11-61 does contain a discussion of the need for dechlorination and space has been provided on island for these facilities. Dechlorination is included in the recommended plan.

COMMENT

Volume III, Appendix H, Section 1.6, Third Paragraph. Report recommends that the MWRA immediately begin bidding for design of the substation for Deer Island. The MWRA should indicate status of design contract.

RESPONSE

This recommendation has been revised in the aforementioned Supplement to Appendix H, Volume III. Since the interim electrical power supply will support interim electrical power needs until 1995, the permanent Deer Island substation will not be needed until 1995. On August 19, 1988 the MWRA authorized Boston Edison Co. to proceed with design including the substation. The interim substation design will consider equipment that can be wed in the permanent substation. Conceptual design of the low voltage distribution system began in September 1988, under the MWRA's contract with Metcalf & Eddy.

Boston Redevelopment Authority

Paul Reavis

Assistant Director for Engineering and Design Services

COMMENT

We recommend that any future increase in flows beyond the planned capacity of the plant be handled by satellite treatment plants at appropriate locations within the MWRA service area rather than by an expansion of the Deer Island facility.

RESPONSE

The Facilities Plan concerns solely the treatment facilities described in it, to meet the projected flows described in Volume III. Ability to expand capacity on Deer Island is extremely limited, so that it is likely that any major increases in treatment capacity would necessarily be located elsewhere.

Daniel B. Curll, President
The Boston Harbor Associates

COMMENT

What TBHA still finds lacking is a scientifically supported but widely understandable description of the improvements to the environment that will result from secondary treatment.

Donald R.F. Harleman
Ralph M. Parsons Laboratory
Department of Civil Engineering (MIT)

COMMENT

Volume V of the Secondary Treatment Facilities Plan does not provide an explicit comparison of the environmental impacts of primary and secondary treatment, but provides the evidence to compare them. The general conclusion, based entirely on data contained in Volume V is the single sentence on page 8-34: "Secondary treatment discharge impacts are not expected to be significantly different from primary impacts." We are forced to consider the fact that the addition of the secondary treatment stage will generate twice as much sludge and this presents an additional major political, social, and economic land disposal problem. It is obvious that the overall land/water environmental impact of the secondary treatment facility is negative. My question to the MWRA is: On the basis of the evidence contained in your Secondary Treatment Facilities Plan, how can you justify the expenditure of about a billion dollars of tax-payers' money on the secondary treatment stage and its associated sludge disposal facility?

RESPONSE

It is not necessary to justify secondary treatment in the Facilities Plan as the MWRA is mandated by Federal law and court agreements to provide this level of treatment. In addition, the environmental benefits of secondary treatment are discussed in the Accelerated Secondary Treatment section (pg. 31) and the Effluent Outfall and Water Quality section (pg. 37) of this document.

Daniel B. Curll, President
The Boston Harbor Associates

COMMENT

Sludge

Sludge generation and disposal should not be viewed as separate projects. TBHA suggests that EOE leave open the option of re-evaluating any pieces of the Facilities Plan which are not built until after it has reviewed the Residuals Management Plan.

RESPONSE

Compliance with the federal court schedule requires proceeding with design and construction of the treatment facilities before residuals planning is complete. Every effort is being made by the MWRA and the regulatory agencies to coordinate treatment facilities and residuals planning.

SOURCE CONTROL - TOXICS

INTRODUCTION

The MWRA has committed to a comprehensive industrial pretreatment program to reduce the flow of toxics to the treatment plant. This commitment is reflected in the increased personnel and funding for the pretreatment program in recent MWRA budgets. Inspection personnel and inspections of local industries continue to increase. The Authority has also implemented strict new requirements for industrial discharges and stiff fines for violations. In several recent cases, the MWRA has assessed penalties for violations by various industries. By working with industries and fining violators, the MWRA is reducing the impact of industrial toxics on the marine environment, sludge quality, air emissions, and plant reliability.

The MWRA has also implemented a public education program to reduce the disposal of household toxics in the sewer system. This program includes information on the dangers of toxics disposal, proper disposal methods, and alternative non-toxic products.

Comments and responses to the MWRA on toxics reduction and source control follow.

COMMENTS AND RESPONSES

New England Aquarium

COMMENT

There is a need for a comprehensive plan for identifying, controlling and reducing toxics loading--from both point and non-point sources. Currently, the MWRA relies on discharge limits and obtaining household hazardous waste program commitments to control toxic loadings. As a start, a comprehensive MWRA plan must demonstrate increased enforcement of actual compliance with the discharge limits, actual implementation of the household program, and in addition, include a source reduction program. The MWRA should commit to expanding agency efforts in promoting source reduction of toxic wastes.

RESPONSE

The Authority does not require industry to implement source reduction programs. However, the Authority does encourage industry to first look to source reduction plans as a means of eliminating discharge violations. We have been working with DEM on a possible joint promotion of source reduction as several DEM initiated source reduction programs in other parts of the state have been quite successful. The MWRA and DEM are planning to work together to develop programs to educate industry within our district as to available source reduction plans.

COMMENT

Which chemicals listed on the federal and state Hazardous Substances List (the "prohibited substances" list) are monitored?

RESPONSE

If it is determined to be necessary, a company may be required to analyze for all chemicals listed on the State Hazardous Substance List. However, our policy is to require industry to analyze only the chemical constituents applicable to their specific manufacturing processes.

COMMENT

The MWRA should establish a municipal inspection program for the purpose of monitoring wastewater quality at main interceptor points and establish an aggressive household hazardous waste collection/education/source reduction program.

RESPONSE

The MWRA is considering establishing a program geared to monitoring municipal discharges at strategic locations in the main interceptors. However, it would be extremely labor intensive and require a significant amount of new equipment. The MWRA is actively involved in developing a Household Hazardous Waste Program. Committee meetings are held on a regular basis



and a strategy is being formed to address the issue through education in the following areas:

1. What are Household Hazardous Wastes?
2. How to properly dispose of Household Hazardous Wastes.
3. The environmental problems related to improper disposal.
4. Alternative products for household use (source reduction).

COMMENT

The MWRA should also monitor for toxic constituents in septage.

RESPONSE

The MWRA proposed a program for septage monitoring in the Fiscal Year 1989 budget. Funds have been allocated and the program has been implemented. It should be noted that the costs of analyzing septage are extremely high and, therefore, only selected sites will be monitored based upon the likelihood of improper disposal practices.

COMMENT

The MWRA has indicated that Category II industries are not permitted under the Sewer Use Permit Program.

RESPONSE

Category II industries are permitted, as are all Category I and III industries. The permits are renewed every 4 years. The frequency of inspections is once a year.

COMMENT

It is still unclear as to whether or not an industry is "in compliance" with sewer use permits.... The MWRA must commit to strict enforcement of compliance schedules and deadlines for meeting toxic discharge limitations and effluent standards.

RESPONSE

For an industry to be in complete compliance, all requirements of Attachments A & B must be met. These include not only discharge permit limits but also self-monitoring requirements, federal requirements, etc. The Authority is committed to requiring industries to meet compliance schedules and deadlines. Penalty assessments will reflect failure to meet such schedules.

COMMENT

The MWRA should require companies to prepare Toxic Usage Reduction Plans as a precondition of receiving a permit to discharge industrial wastewater into the district system.

RESPONSE

An industry may receive a permit even if they are not yet in compliance with the discharge limits. The permit is a tool used to help industries meet the discharge limits and come into

compliance. The industry may submit a Toxic Usage Reduction Plan as part of their plan to come into compliance. However, it is not a requirement to receive a permit. To reiterate, the Authority is working with other agencies to encourage the use of Source Reduction Plans.

COMMENT

The MWRA should require that industrial sewer users continually move toward improving the quality of their effluent....

RESPONSE

The Authority is continually encouraging industries to strive toward improving their effluent quality through more efficient operation of existing treatment facilities and source reduction and waste minimization.

COMMENT

Accurate qualification and quantification of hazardous waste being produced in the MWRA district is needed, along with determination of the routes of disposal of these toxics.

RESPONSE

Information on all facilities discharging industrial waste is stored in the MWRA's computerized industrial data base. The information includes data on chemical storage, hazardous wastes generated and disposal of hazardous wastes. Industries which dispose of hazardous wastes are required to submit copies of manifests to verify proper disposal. Whenever questionable hazardous waste disposal practices are encountered, the proper agency is notified for appropriate follow up.

The Authority is also attempting to identify and quantify hazardous wastes generated and discharged to the sewer from households. It would be impossible to address each household individually, so the Authority is addressing the problem of household hazardous waste by focusing on the entire district.

COMMENT

The MWRA should develop a Comprehensive Plan for identifying, controlling and reducing toxics loading--from both point-sources and non-point sources--to the wastewater stream.

RESPONSE

Over the next year, the MWRA intends to intensify the existing industrial waste program and through the addition of personnel and equipment. In addition, numerous pilot programs will be initiated such as septage monitoring, urban runoff monitoring and the household hazardous waste program. All these efforts will be to identify all sources of toxics to Boston Harbor. Once identified, these additional sources of toxics can be reduced through well thought out programs implemented beginning in 1990.



EARLY SITE PREPARATION

INTRODUCTION

Comments on Early Site Preparation focused on three major issues: disposal of materials on the Island, public access to buffering landforms, and control of noise, odors, and rodents during construction.

Materials presently on Deer Island requiring disposal include grit and screenings from the treatment plant which have been landfilled on the Island over the past 20 or so years. These materials must be relocated to clear space for new treatment facilities construction. Grit and screenings will be placed in a secure landfill to be constructed as part of the southern landform. Only grit and screenings, along with the possible addition of a small amount of fixed scum, will be placed in this landfill. Concrete, stone, and pavement from the demolition of existing structures and roads on Deer Island will also require disposal. This non-biodegradable material will be incorporated as fill in the northern landform. Future plans may include establishing a demolition material landfill on Deer Island for organic materials produced during demolition of structures and construction of new facilities.

Public access to the northern and eastern landforms is planned. Public access to the southern landform is likely to be limited due to the presence of the grit and screening landfill and precautions regarding the stability of that landform. Upon completion of the landfill, public access to the southern landform will be reexamined by the MWRA.

The control of noise, odor, and rodents during construction requires coordination of contractors working on the Island to ensure compliance with mitigation and control measures. The MWRA is establishing a Site Manager for Deer Island as part of the Program/Construction Management contract. The Site Manager is responsible for coordinating the efforts of all the contractors and making sure they comply with control and mitigation measures.

COMMENTS AND RESPONSES

David Graber, Winthrop Consultant & FPCAC

COMMENT

Plans should be revised to allow citizen access to the southern tip of the island. A perimeter walkway should be included. The capping of the grit and screenings disposal area should be done so that it does not prevent this access.

RESPONSE

As shown in Figure 11.1.3-5 of Volume III, p.11-21, public access has been provided on the entire northern landform and along the eastern shore to the southern tip of the island. The northern hill is equivalent in height to the existing drumlin and provides a scenic vista for viewing the harbor islands. Our survey of the site indicates that the access provided at the southern tip offers a sweeping view of the harbor from the lower elevations. There is no need to be at the peak of the southern landform to appreciate this view.

Presently access had only been provided on the northern and eastern landforms which are to be constructed of excavated material which will provide stability (short term and long term) and not contain any deleterious material which might present a public health hazard.

Access to the southern landform has been limited. Based on the level of detail provided in the facilities planning pertaining to the area requirements of the grit and screening landfill and stability of this landfill, it is imprudent to indicate allowable access to this area on the plans. We understand the desire for public access to this area on the island and we concur that the potential for future access exists. Subsequent to the construction and stabilization of the grit and screening landfill, public access to this area can be reexamined by the MWRA.

David Graber, Winthrop Consultant

COMMENT

Volume VI (pp.7-17&18) defers to Volume III for plans regarding the provision of an alternate non-potable service water system during Early Site Preparation (when the cooling water reservoir atop the drumlin would be demolished). Volume III addresses long-term non-potable water plans at page 11-85. Is it intended to construct that long-term system at the location recommended in Volume III during Early Site Preparation?

RESPONSE

The long term non-potable water system addressed in Volume III on page 11-85 is intended to be constructed concurrently with the new sodium hypochlorite disinfection system and not during



Early Site Preparation. During Early Site Preparation provisions for an alternate non-potable water source to accommodate the demolition of the reservoir have been considered. This interim non-potable water system will incorporate modifications to the existing system including plant water pumping station upgrades and new cross connections in the existing distribution system. The P/CM and the Early Site Preparation engineer must be cognizant of other ongoing projects affecting this system including the fast track improvements and interim disinfection and off-site utilities, in order to maintain existing plant operation with an adequate water supply is the responsibility of the Early Site Preparation engineer.

COMMENT

Given the Harbor-island setting, extensive rodent control measures will be required as part of the major site preparation activities. Winthrop would expect that this issue would be addressed beginning with design scoping for Early Site Preparation.

RESPONSE

The MWRA will include specifications covering necessary rodent control in the construction contracts for early site preparation activities. A site coordinator for Deer Island projects will ensure rodent control provisions are carried out and a separate contract for rodent control during and after early site preparation is being planned.

DEQE

COMMENT

The Division's basic comment is that the program schedule and project timelines are not consistent with recent information presented to DWPC. The most recent information indicates that completion of the Early Site Preparation design phase will likely be January 1989 with initial construction activities beginning in March 1989. Volume VI on the other hand assumes initiation of construction activities during the fall of 1988. This is critical in that the FEIR estimates that two winter seasons will be necessary to excavate and landfill the grit and screenings, and that this activity would be the first major activity to be initiated during the 1988-1989 winter period. These scheduling issues must be resolved and the ramifications assessed in the FEIR.

RESPONSE

Refer to the response to the DWPC's comment regarding page 11-129 of Volume III on page 18.



COMMENT

It is unclear whether the MWRA intends to incorporate grit and screening and demolition wastes into one landfill at the southern tip of Deer Island. Since administrative requirements are different and more time consuming for a demolition landfill and such a facility is not "necessary" to complete Early Site Prep., it may be better to keep the two elements separate, both administratively and physically.

RESPONSE

Refer to the response to DWPC's comment regarding page 11-133 of Volume III on page 19.

COMMENT

Numerous sections of the report state that outfall protection must be performed before grit and screening landfilling, but the schedule (Figure 8.5.1) shown on page 8-34, Volume VI shows outfall protection starting 2-3 months later than landfilling. This issue must be clarified. Figure 8.5-1 also indicates the design, bid and award phases being completed by August 1988, which is inconsistent with the latest information submitted to the Division.

RESPONSE

Protection of the existing effluent outfall pipe must be completed prior to landfilling activities which could affect the pipe. The effluent outfall pipe location, however, only crosses a portion of the landform which will include the proposed grit and screenings landfill. Approximately 75 to 80 percent of the grit and screenings landfill can be completed prior to, and without affecting the effluent outfall pipe. The schedule shown in Figure 8.5-1, Volume VI (p.8-34) reflects this approach.

COMMENT

Volume VI, pages 8-35 and 8-39 appear to confuse the MEPA processing and permit and license procedures.

RESPONSE

The revised text in Volume VI, pages 8-35 and 8-39 should read as follows:
....Given that this project will require up to a total of seven years for completion of design activities on all elements of the project, and that there are interrelated projects which affect each other to varying degrees (e.g., Water Transportation Facilities and Early Site Preparation), it must be determined whether the appropriate permitting agencies will review each permit application with regard to specific project information, or as a whole....

COMMENT

Volume VI, Comment No. 3, page 7-4 includes a very general discussion of alternative grit and screening landfill locations but no detailed technical or environmental comparisons are



included. This information is necessary for DWPC to prepare the Environmental Assessment for this project and therefore must be submitted to DWPC.

RESPONSE

The referenced discussion indicates that "A preliminary screening was performed to determine alternative locations for the disposal of grit and screenings on Deer Island. For any location other than the recommended location at the southern end of Deer Island significant interference with either concurrent or subsequent earth-moving activities is entailed, and/or the potential for creating odor problems with the adjacent community increases."

Disposal of the grit and screenings must be performed before major drumlin excavation can begin. Since the disposal must occur as one of the first construction activities undertaken for the new treatment facilities, a basic premise employed in that the location must not interfere with the construction of buildings or structures subsequent to the early site preparation activities.

Refer to the Recommended Deer Island Facilities site plan, shown in Volume III, figure 11.1.3-2, p. 11-15 of the final EIR/EID. This site plan, which was developed after detailed consideration of multiple environmental, technical and institutional constraining factors, would limit the potential locations for grit and screenings disposal to either the northern, eastern, or southern landforms. All other areas are occupied by wastewater treatment facilities, residuals management facilities and transportation areas.

The eastern landform area is a narrower and more restrictive location for constructing a grit and screenings landfill, compared with the recommended location. The eastern landform area is also close to the haul road, which could interfere with removal of excavated materials from the drumlin to the northern landform construction area. Finally, the eastern landform area is much closer to the prison area. Since the prison will be occupied during the early site preparation activities, a potential for both increased noise and odor impacts exists for this location, relative to the recommended location.

The northern landform location was rejected as a possible location for grit and screenings disposal, since its proximity to Point Shirley would have a much greater potential for odor impacts than the recommended location.

COMMENT

The report includes further discussion regarding 21E activities and also states, "...consultant will be engaged by MWRA to undertake and complete a Massachusetts GL 21E, Hazardous Waste Site Assessment," but does not satisfactorily address our comment which had requested submission of a scope of work. The MWRA should update us on consultant selection and scope of work development.



RESPONSE

Consultants who will be performing the 21E screening-level assessments were selected on June 1, 1988. On May 11, 1988, the MWRA provided a draft scope of services for these activities to Mr. Steven Lipman of DEQE for comment. On September 14, 1988 a draft work plan was provided to DEQE-Division of Hazardous Waste for comment.

COMMENT

Volume III, page 11-99: The report states that excavation of the drumlin will commence in September 1988. This target date appears unrealistic based upon the fact that the design phase is not estimated to be completed until January 1989.

RESPONSE

The MWRA's current design phase schedule for early site preparation revises the schedule described in the facilities planning documents. Based on the MWRA's current scheduling, all early site preparation permitting and design activities would be completed in January, 1989, which would provide for a starting date of approximately March, 1989, to begin excavation. For the early site preparation plan which is constrained by the continued operation in 1989 of the House of Corrections facilities, approximately 1,200,000 yd³, total, of drumlin material would be excavated by the end of early site preparation in December, 1990 (refer to Table 7.1.2 of the final EIR/EID, Volume VI, p. 7-10). The later starting date for excavation will not affect the completion of planned work for early site preparation, since the remaining time available for excavation (about 22 months) is adequate for moving the volume of drumlin material, given the planned construction work force and equipment described in Volume VI.

COMMENT

Volume III, page 11-129 states that the excavation and landfilling of the existing grit and screenings at Deer Island is the first major task to be performed in the early site preparation program, and that "any delay in the grit and screenings removal and reburial will delay the project" (emphasis added). It is unclear whether both phases of the grit and screening removal/reburial program (winter of 1988-1989 and winter of 1989-1990) must be completed before further activities can proceed. This issue should be clarified.

RESPONSE

The current implementation schedule for early site preparation revises the schedule described in the final EIR/EID. Under the current schedule, engineering design and permitting for the new grit and screenings secure landfill will be completed by January, 1989, and construction would begin by March, 1989. While the new schedule delays the beginning of the landfill

construction, no changes to the endpoint of the schedule are expected since:

It is now expected that the grit and screenings can be excavated during the summer of 1989. Odor problems would be avoided by applying quicklime to the grit and screenings excavation. Implementation of this approach will be contingent on its acceptance by the Town of Winthrop and the DEQE; preliminary discussions of this plan with the technical representative to the Town of Winthrop have taken place. The MWRA expects to demonstrate the feasibility of this approach during the fall of 1988 when sampling and testing of the grit and screenings occur. The quicklime procedure will be tried on a small area of the grit and screenings. This activity will be coordinated with both the Town of Winthrop and DEQE.

The original concept for excavating the grit and screening was based on the need to perform this activity during the winter months to avoid odor problems. Because of this constraint, two winter seasons were conservatively scheduled to complete this activity. With the change to the excavation method noted above, however, it is expected that the entire grit and screenings volume could be excavated through one, four to six month period. This could actually improve the completion schedule for this activity by up to two months.

Figure 8.5-1 in the final EIR/EID, Volume VI, (p.8-34) shows the implementation schedule for nine early site preparation construction activities, including the original plan for grit and screenings removal. The implementation of all of the indicated construction activities, with the partial exception of the drumlin excavation and creation of the northern and southern landforms, are independent of the grit and screenings removal/disposal. Therefore, any schedule changes for the grit and screenings removal do not directly affect other activities in early site preparation.

Excavation and disposal of the grit and screenings in the secure landfill is the base for creating the southern landform; the schedule changes and revised odor control method described above allow for the completion of the southern landform by the end of early site preparation in late 1990. Excavation of the remainder of the drumlin soils for creating the northern landform planned during early site preparation, can be performed by the end of 1990.

COMMENT

Volume III, page 11-133 indicates that the MWRA intends to codispose of approximately 50,000 cubic yards of demolition debris and the grit and screenings in the secured landfill to be constructed within the southern landform. DWPC recommends that such a procedure not be followed due to the likelihood of greater permitting problems with the demolition landfill and the fact that the materials are very different and will almost certainly require different designs and operating procedures.

RESPONSE

The final EIR/EID, Volume VI, Section 6.5.3, (p.6-12) indicates that up to 50,000 yd³ of material will be produced during the early site preparation period from the demolition of existing structures. The exact quantity will depend largely on the extent to which the Fort Dawes bunkers are required to be demolished. Most of the demolition debris will be produced from the existing concrete wall traversing the island, the Fort Dawes facilities including razing of bunkers, and the existing reservoir on top of the drumlin. A gross breakdown of the quantities of demolition debris which could be produced from these activities is as follows:

Demolition of concrete bunker and wall - approximately 43,000 yd³, comprised of concrete with reinforcing steel;

Demolition of the reservoir - approximately 4,000 yd³ of granite block;

Miscellaneous wood waste, etc., 3,000 yd³.

At the present time, it is unlikely that the demolition debris will be incorporated into the planned grit and screenings landfill. Instead, the MWRA is planning to incorporate the "non-biodegradable construction debris," i.e., the concrete granite block and asphalt materials, into the landforms as fill material. As "organic construction debris," the relatively small quantity of wood waste may be temporarily stockpiled on Deer Island and subsequently disposed of in a landfill to be located on Deer Island, or it may be hauled off-island for disposal at an existing, approved landfill.

Special construction procedures, including size limitation of demolition debris pieces and removal of protruding reinforcing steel, are currently being considered by the Early Site Preparation Project to facilitate the appropriate disposal and reuse of these waste materials in the landforms. Preliminary discussions between the MWRA and the Division of Solid Waste have indicated that this disposal/reuse concept could be approvable contingent on the Division's review of the special procedures. This approach will eliminate the need for associating landfill site assignment for demolition debris by the Division, with the disposal of grit and screenings.

COMMENT

Volume III, Appendix H, Section 8.1.3 Modeling. The third paragraph states that the new berm areas on the island were utilized in the model runs, but that public access to those areas was assumed to be restricted, and therefore the maximum impacts resulting from the analysis were assumed to occur off the island or beyond security areas. This issue needs further discussion with the MWRA since the proposal by the MWRA regarding public access to the site includes a walking trail along the eastern perimeter of the island down to a larger public access zone at

the southern tip. This is particularly important since the point of maximum contaminant concentrations are along this same eastern side of the island.

RESPONSE

The final EIR/EID, Volume III, Section 11.1.3 (pages 11-20 and 11-91) describes overland access to Deer Island, and recommends security procedures which will control public access to the berm areas. The overland access road will connect Point Shirley to Deer Island. This road will have controlled access at two points. One of the control points will be a fenced gate at the property line, adjacent to Point Shirley and the northernmost outer berm. The second control point will be the entrance to the treatment facilities at the limit of the buffer zone.

Public access to this berm area, as well as to an extension of the berm area which skirts the eastern ring of landforms connecting to the southwesternmost tip of Deer Island, will normally be permitted during the daytime. Access to these buffer areas will be controlled by the gate, located at the first access control point at the property line, which could be closed at night and when activities occurring at the treatment facility require closure.

Since public access to the berm areas is controlled, the modeling results focused on uncontrolled areas, beyond the security fencing.

David Graber, Winthrop Consultant

COMMENT

In Winthrop's January 27, 1988 letter comments were made on the draft EIR/EID, Volume III, requesting that pier operating noise during plant construction be made part of the STFP assessments. That has not been done.

RESPONSE

During construction, sand, gravel, and cement will arrive by barge to the bulk pier facility. The alternative delivery methodologies which could be employed (MWRA 1987) include delivery by 600-ton barge, requiring approximately 17 deliveries per week, and three hours to unload each barge. Alternatively, delivery could be by 3,000-ton barges, requiring 2.3 deliveries per week. Unloading would be by crane to conveyor.

The expected sound level from the barge unloading was predicted assuming a distance of 5,200 ft. to the nearest neighbor at Point Shirley. Since it is not yet known exactly what type of equipment will be used to unload the barges, predictions were made using two different types. If a clamshell unloader is used, the level at the nearest neighbor would be an Leq of 44 dBA (S&W 1980). If a modest-size crane is used, the level would be approximately 40 dBA (Barnes, et al. 1977). In either case, noise mitigation would be required to assure that

the bucket does not directly strike the hopper as this could cause an impact noise much higher than that indicated.

The above noise levels are not sufficiently loud to cause a daytime noise impact, but if nighttime unloading were desired, a few dB noise reduction would be required to meet the nighttime noise limit at the property line.

David Standley, City of Quincy

COMMENT

Additional questions regarding the noise barrier analyses were discussed during a recent meeting with the Noise Consultant. Backup calculations should be provided for the noise barrier analyses to resolve remaining questions in this area.

RESPONSE

Backup calculations for the noise barrier analysis have been provided.

COMMENT

Construction Noise at Houghs Neck (Volume IV, p. 8-13 Inter-Island Conveyance System) - The response to the comment of January 22 concerning construction noise level in Houghs Neck suggested that 63 db(A) "is the maximum which would be experienced at Houghs Neck over the duration of construction." This gives the impression that 63 db (A) is a peak level. Volume IV however seems to indicate that noise level will be experienced as the norm during the period of pier construction. The pile support system for the piers has been changed from the placement of concrete piles by auguring to driving of steel piles. While shrouding may have some slight beneficial impact, and certainly should be employed, it must be supplemented by other pile driving methods such as damping the piles, and selection of the least noisy piledriving technique. Noisy activities should be restricted as provided in the mitigation commitments for the Piers and Staging Project (time of day and weekend restrictions, community liaison, and noise monitoring).

RESPONSE

The only construction activity at Nut Island addressed in the Secondary Treatment Facilities Plan is the construction of the tunnel shaft and headworks. At Great Hill, the silenced pile driving will cause peak sound levels of 62 dbA, while combined clamshell and cement truck operation will cause levels of 58 dbA. The STFP does not include noise related to the Piers Project. Please refer to the report entitled "On-Island Water Transportation Facilities" for information regarding the piers project.

Boston Redevelopment Authority

Paul Reavis

Assistant Director for Engineering and Design Services

COMMENT

We find no mention in the EIR of rodent control and extermination measures prior to and during the construction of the plant. In view of the potential adverse impacts from rodent disturbance, we feel it is essential that a rodent control program be established as early as possible prior to excavation and site disturbance and that appropriate controls be maintained throughout the construction period.

William P. Frazier, Winthrop Director of Public Health

COMMENT

We feel that it would be in the best interest of both the town and the Mass. Water Resources Authority to plan to set up an extermination program with a professional exterminator to protect the general public of Winthrop and the employees who will be working on this major project at Deer Island.

RESPONSE

Plans are being finalized to hire a rodent control contractor to implement a long term rodent control program for the entire island. As a precautionary measure, in case difficulties in procuring a contractor are encountered, the individual contracts for the early phases of construction will include rodent control provisions. Rodent control and other mitigation actions will be coordinated on Deer Island by a site manager under the P/CM contract.

Daniel B. Curll, President

The Boston Harbor Associates

COMMENT

Public Access

TBHA recommended that the MWRA consider public access on all sides of Deer Island once construction is completed.

The MWRA is championing water transit to Deer Island for workers during construction. Could not the piers be used to allow citizens to reach Deer Island by water from other parts of the Harbor once the construction is complete?

RESPONSE

The layout of the wastewater treatment plant made an effort to provide meaningful access to the island for the public, while

also maintaining a separation from the day to day operating activities of the plant. The piers at Deer Island will not only be used for construction, but also for transporting workers, chemicals and possibly residuals during operation of treatment plant.

PILOT PLANT

INTRODUCTION

The current plans for piloting the wastewater treatment process involve two phases. The first, to be implemented beginning in late 1988, is a traditional pilot program that utilizes trailer mounted treatment units. This interim pilot program will confirm the basic sizing, loading criteria and anticipated performance of the pure oxygen activated sludge system and the anaerobic selector and provide data on toxics removal and emissions and sludge quantity and quality. The data developed in late 1988-early 1989 will be incorporated onto the conceptual design of the plant.

The second phase of the pilot program is to design and build two parallel pilot secondary treatment trains at the 1-2 mgd. scale, to be incorporated into the full size plant as a permanent testing, training and research facility. This facility is currently in the conceptual design phase. Based on the current schedule, data from this pilot facility will not be available until mid-1990. At that point the data will be used as a basis for the detailed design of the secondary plant, which will be completed between late 1992 and late 1994. The permanent pilot plant will be able to physically model the stacked clarifiers, whereas as the interim pilot plant will not due to the excess time required for design and fabrication of these units. The objectives of the interim pilot plant program include:

1. Evaluate STFP loading parameters and secondary treatment process performance reliability over the wide range of flows and loads expected. Data will be collected and analyzed to determine biological reaction rates, oxygen uptake rates, sludge production, sludge settling rates and effluent concentrations.
2. Evaluate the need for and effectiveness of the proprietary anaerobic selector process to control solids settling rate and reduce oxygen requirements.
3. Evaluate secondary process performance and unit sizing over a series of operating conditions to determine impact on soluble BOD removal, sludge yield, and oxygen requirements.
4. Analyze influent, effluent and sludge samples for metals and other priority pollutants to confirm predicted removal rates and expected secondary sludge concentrations. The data will be compared with the literature values used during facilities planning for effluent discharge modeling and sludge characterizations.
5. Perform sampling and analysis of the reactor vent gas for VOC contaminants. Due to certain differences between pilot units and

a full scale plant, a direct correlation between the two for VOC and odor emissions may not be possible. The current schedule indicates that the interim pilot plant will be run for several months to capture both warm and cold weather data, and high and low groundwater periods.

COMMENTS AND RESPONSES

FPCAC

COMMENT

The FPCAC supports the "pilot" operation of parts of the plant as recommended. The committee is particularly concerned about the reliability of the anaerobic selector, and the implications if it fails.

RESPONSE

The reliability of the anaerobic selector will be carefully analyzed during the pilot program to determine its effectiveness. Also refer to the response to the Secretary's Certificate. The agency will have to determine as part of the pilot work how much "credit" to place on the performance of the selectors, i.e. the extent to which the size of the final clarifiers can be reduced. We are also examining options to utilize this section of the plant in both the aerobic and anaerobic modes for even more contingency planning.

David Graber, Winthrop Consultant

COMMENT

We concur generally with the Pilot Testing Program proposed in Volume III, Subsection 11.1.4, (p.11-104). However, we suggest any plans for pilot-scale modeling of stacked clarifiers be carefully scrutinized.

RESPONSE

The MWRA will be conducting two phases of pilot plant operation. The first will involve a trailer-mounted unit which is not capable of simulating stacked clarifiers. The focus of that operation will be to pilot the biological processes the aeration system and selector units.

The second operation will involve a much larger, custom-designed facility. In that case we do intend to include stacked clarifiers. However, it is acknowledged that there are more scale-up problems with hydraulic modeling than with biological modeling.

COMMENT

Where would the proposed full-scale pilot units be located on Deer Island?

RESPONSE

The conceptual design and location of the full scale pilot units will be addressed as a part of the Lead Design Engineer's contract. The location will naturally be coordinated with other planned activities on island. The MWRA intends to retain the



pilot units as permanent facilities for training and testing of process modifications. Under current plans, the interim trailer-mounted pilot plant will be located adjacent to existing settling tank number 8, and the larger permanent pilot plant will be located just north of the old steam pump station.

COMMENT

Modeling of emissions control equipment should also be considered. Pilot scale tests of odor control equipment are recommended.

RESPONSE

The MWRA concurs that pilot-scale tests of odor control equipment are required. This need will be addressed initially as part of the scope of the Lead Design Engineer. Discussions are needed with the various regulatory agencies to determine the actual scope and methodology for subsequent testing.

New England Aquarium

COMMENT

The MWRA has stated that with the selector the secondary clarifiers have been designed to handle a Sludge Volume Index of 150, with a factor of safety of 1.4, for the design MLSS at peak flow. Design with a selector allows the secondary clarifiers to be reduced in size. But if the selectors should fail or operate at reduced efficiency (due to chemical upset, for example), what alternative measures can be taken to ensure proper sludge settling?

RESPONSE

Information obtained during the pilot study will aid in the final design of the selectors and secondary clarifiers and further define expected sludge settling characteristics. Sludge settling characteristics can also be controlled through process modifications in the SRT, MLSS, return sludge rates, and blanket depths in the final clarifiers. As indicated in other responses, we have not decided how much "credit" to apply to the selector process. The regulatory agencies will need to approve these decisions and those associated with redundancy planning.

Secretary's Certificate

COMMENT

The Final EIR has gone as far as possible, based on the literature and available data, with analysis of possible treatment efficiencies for non-conventional constituents. The results of the pilot plant operation are needed to confirm the partition of contaminants into the effluent, sludge, and air contaminant components. Odor and air quality impacts should be

evaluated through the pilot plant and any problems identified reported in the response document. The effectiveness of the Anaerobic Selector also needs confirmation.

RESPONSE

The MWRA has developed a scope of work that is included in the Lead Design Engineer contract to begin this study. More work will be needed to actually design the facility. A one to two mgd secondary treatment pilot plant is envisioned at Deer Island that will address all of the items outlined in the Secretary's Certificate. The pilot plant may be operated as a pilot facility and as a training and research facility as a permanent part of the completed treatment facilities.

EPA

COMMENT

Volume V, Appendix BB (Whole Effluent/Disinfection Toxicity), Section 3.2, (p.48-58) indicates that the effluents produced by the pilot plant for toxicity testing used a combined Deer Island/Nut Island "effluent" as an influent. It seems that a combined influent would have been appropriate since the effluent would have already been given primary treatment.

RESPONSE

Samples for the toxicity testing were post primary effluents from both Nut Island and Deer Island. It was felt that post-primary sampling followed by in-lab settling would best represent future facilities since the current settling procedures at Deer Island and Nut Island are not very efficient. It should be noted that the quality of the batch-reactor effluent was consistent with expected future effluent quality. Thus, the MWRA contends that the test procedures were appropriate, given the purpose of the studies.

DEQE

COMMENT

Volume III, pages 11-108: The report includes a schedule for the pilot plant facilities which indicates that the "regulatory review/grant request" will occur during January and February 1989. Extensive technical reviews and interactions between DEQE and the MWRA must take place regarding the design and permitting of the pilot plant, and the MWRA should not assume that all such interactions can take place during the January to February 1989 time period. It is the Division's recommendation the regulatory reviews be initiated as early into the process as possible to ensure adequate review periods.

RESPONSE

The pilot plant work is expected to be initiated immediately after authorization to proceed on the LDE contract. Throughout the conceptual and final design of the pilot plant facility, coordination will be ongoing between the DEQE and the MWRA to ensure expeditious regulatory review and permit approval. We will attempt to provide DEQE/DWPC with as much review time as possible.

ACCELERATED CONSTRUCTION SCHEDULE

INTRODUCTION

The MWRA, as instructed by Federal Court Order, developed an accelerated schedule for the construction of the Deer Island Secondary Treatment Facilities. Upon completion and examination of accelerated schedule options, the MWRA Board of Directors decided to proceed with an accelerated construction schedule. The accelerated schedule, described as Alternate Plan A in the Secondary Treatment Facilities Plan (please note that this plan was called alternative B in the MWRA Board Staff Summary), provides for the concurrent construction of primary and some part of the secondary treatment facilities. This results in the opportunity to provide primary treatment for 100% of the flow and secondary treatment for 25% of the flow in 1996, with 100% secondary treatment in 1999. This option provides an advantage over the original base plan which would provide primary treatment in 1995, but no secondary treatment until 1999. The original base plan followed court milestones which were based upon an assumption of sequential construction: primary treatment facilities being built to completion first followed by secondary treatment facilities construction.

Implementation of the accelerated construction plan requires that several concurrent activities be achieved. Existing primary treatment facilities must remain in operation during construction of the new secondary treatment facilities while modifications to the existing plant take place. Residuals facilities must be able to handle roughly 30% greater volume (over the original plan) of sludge produced in 1995 by the alternative plan. The Deer Island House of Correction must be decommissioned by 1991 to allow its demolition by 1992.

The MWRA has determined that all of these considerations can be met. Engineering investigations have concluded that difficulties in maintaining existing primary treatment operations can be overcome. Operation of planned interim residuals processing beyond 1995 in conjunction with long term composting facilities will provide the additional residuals handling capacity required. Legislation to provide for an accelerated design-build process for a new prison has been approved by the State Legislature and provides for decommissioning of the House of Corrections by the end of 1991. Movement of the prison is also mandated by federal court order.

Construction impact changes resulting from the accelerated schedule are minimal. The potential exists for an increase of approximately 100 workers more than the base plan for the period 1993-1994 resulting in an acceptable increase in traffic which does not exceed peak estimates reported for the base plan. The overall worker peak, which occurs in 1992, is unaffected by the accelerated plan. Maximum sound levels produced by construction

under the accelerated plan do not significantly exceed the conservative estimates developed for the base plan. Increases of 1-3 decibels over the original plan are anticipated. Overall, the impacts of the alternate plan on the marine environment and human health would be minimal.

Providing partial secondary treatment at an early date offers significant environmental benefit, with enhanced levels of removal for organic materials, solids, and toxics. Providing some secondary effluent will provide a better effluent quality for discharge through the new outfall, alleviating some concerns raised regarding the outfall siting. Early use of secondary treatment does have the consequence of increased toxics levels in residuals at an early date. Investigations by the MWRA residuals program and contractors have indicated that several options exist for handling the increased residuals volume and quality changes through the interim residuals program.

The MWRA is committed to following the accelerated schedule described and to exploring reasonable and attainable schedule enhancements which lead to environmental benefit and decreased costs without sacrificing mitigation potential or reliability. Final decisions on the details of the accelerated construction plan will be made when a critical path schedule for the plan is complete and when the court and all parties including the regulatory agencies are satisfied regarding the impacts of the plan.

COMMENTS AND RESPONSES

FPCAC

COMMENT

The planning for secondary treatment facilities on Deer Island and the use of space on Deer Island for residuals processing are not sufficiently coordinated. Residuals processing has a direct bearing on the effectiveness and reliability of the treatment plant.

RESPONSE

In September 1988, the Authority's Board of Directors voted to reduce the number of long term residuals management options being evaluated, and carry a small number of the most promising options for further analysis, and completion of the residuals facilities planning and environmental review process. There are four processing site/technology options involving three sites that are recommended for further analysis. The sites include the Fore River Staging Area (FRSA) in Quincy, Spectacle Island, and the Stoughton site. All processing options include sludge digestion and thickening only, on Deer Island. The options of composting and/or combustion on Deer Island were eliminated at this point due to limited available space on Deer Island, and anticipated difficulties associated with permitting a thermal processing facility on Deer Island due to the presence of the air emissions source represented by the future wastewater treatment plant. In addition, if composting were implemented on Deer Island, there would be insufficient space available for sludge digestion, thus eliminating a valuable energy source to the plant, methane gas from digestion.

A series of six reports documenting the studies and evaluation process used to select the smaller list of residuals management options was submitted to the MEPA Unit in October 1988 for a 30 day public comment period. In January 1989, the Authority plans to announce the preferred residuals management alternative(s) and issue additional documents that will complete the Draft Facilities Plan and Draft Environmental Impact Report.

COMMENT

The FPCAC is in favor of the accelerated plan for secondary treatment. Final decision in favor of this schedule, however, relies on complete evaluation of: (1) implications on water quality, (2) impacts on consumer rates, (3) impacts on residuals program, and (4) on successful decommissioning of the prison.

RESPONSE

The MWRA Board has accepted the accelerated plan schedule and directed staff to develop a critical path method schedule (CPM) based on this plan. A final decision on the schedule will

be made when the CPM is developed and when the Court and all parties including the regulatory agencies are satisfied relative to all impacts of the schedule including those listed above.

DEQE

COMMENT

Volume III, Page 11-2: The last sentence should be revised by removing the third word in the next to last line (should) and replace it with "shall" or "is required".

RESPONSE

The MWRA concurs with the suggested revision; the revised text would read, "However, once the fast-track improvements are complete, air emissions monitoring is required in accordance with DEQE protocol to verify this assumption (i.e. to verify that additional air emissions controls would not be required at the remote headworks.)

COMMENT

Volume III, Appendix K (Traffic). It is our understanding that the information in this document includes revised truck trip figures to account for the accelerated secondary treatment proposal being recommended by the MWRA. Please confirm this assumption or revise and resubmit the document as necessary.

RESPONSE

A detailed assessment of the alternate plan's effects on construction worker and truck traffic requirements, which have previously been estimated for the base plan, has been performed by PEER Consultants. The results of this assessment, which revises the preliminary characterization of the alternate plan's traffic impacts (see Section 12.6.1, Volume III of the final EIR/EID), are summarized on Table 1. The data indicate worker and truck traffic requirements for each major element of the construction projects (ongoing MWRA projects, secondary treatment, and residuals management) and O&M traffic, and provides a total for all projects. These estimates have been made in the same manner as those described for the base plan in the final STFP.

The Table 1 may be compared with Table K-1, Appendix K to Volume III of the final STFP, which similarly describes traffic requirements for the base construction plan. Significant effects of the alternate plan on traffic requirements associated with the base plan are as follows:

- * Peak estimated total worker traffic (including O&M) for the base plan is 1,851 per day to Deer Island, occurring in 1992. For the alternate plan, peak worker traffic to Deer Island is estimated to be 2,023 per day, occurring in 1994.

- * Peak estimated total truck traffic to Deer Island for the base plan is 195 per day, occurring in 1992 and 1993. For

the alternate plan, peak total truck traffic to Deer Island increases by ten trucks to 205 trucks per day, occurring in 1993.

COMMENT

Volume III, Appendices K (Traffic) and S (Satellite Parking Study) - An attachment to Appendix K, prepared by PEER Consultants dated March 1988, assesses satellite parking needs for workers who will be involved in constructing the wastewater facilities while Appendix S, prepared by BSC Group dated March 25, 1988, is also an assessment of worker satellite parking needs. The PEER document assesses three sites while the BSC study assesses seven sites, two of which (Suffolk Downs and the MDC lot at Ocean Avenue) were also assessed by PEER. Please indicate which satellite parking study is correct, and why there are two apparently conflicting studies of the same issue, both dated March 1988.

RESPONSE

The description of plans for satellite parking and busing which are summarized in Section 11.4.4 of Volume III of the final EIR/EID indicate that these evaluations were performed in two phases: An initial feasibility study was performed as part of the STFP which examined eight candidate satellite parking locations. After subjecting each of these potential sites to screening criteria, three sites, namely the Suffolk Downs Race Track, the MDC lot north of Wonderland, and the Orient Heights Blue Line Station, were identified as acceptable. The results of this evaluation, including environmental assessments for the three sites and a preliminary busing plan, were provided in the draft EIR/EID in Volume V, Appendix K, and were subsequently updated in the final EIR/EID to resolve DEQE comments pertaining to traffic impacts.

In response to the need for accommodating projections of additional construction workers, the MWRA expanded its scope of inquiry to identify additional feasible satellite parking locations. Based on the results of this further study, a total of seven acceptable sites were identified, which included two of the sites previously described (the location at the Orient Heights Station was eliminated from further consideration, since it would only support up to 50 additional parking spaces, making it of only marginal use, at best). The results of this expanded assessment were included in the final EIR/EID in Volume III, Appendix S.

Both satellite parking studies are "correct", in that they selected acceptable locations in accordance with the indicated criteria; the report included in Appendix S broadened the preliminary scope and therefore identified additional, feasible satellite parking locations.

The MWRA is currently pursuing negotiations with the locations indicated in Appendix S; traffic impact assessments for the five additional locations, relative to the preliminary study,

are currently being completed, and will be provided in a Preliminary Design Report.

COMMENT

Volume III, page E-59: Report states that once a year the activated carbon will need to be removed and transported off-site for direct thermal regenerating and that this would result in 40 truck loads. The report then states that in order to minimize traffic impacts to Winthrop the carbon from only one or two units at a time could be performed.

The real answer to this situation is that the RO/RO facilities at Deer Island will be utilized to move these materials, therefore there will not be any impact to Winthrop.

RESPONSE

The report states "to lessen truck traffic on Deer Island". The goal is also to lessen traffic with the Deer Island Treatment Facilities. Activated carbon is planned for roll on/roll off transport.

Boston Redevelopment Authority

Paul Reavis

Assistant Director for Engineering and Design Services

COMMENT

The FEIR does not make clear what effect a delay in the approval of the design/build procedure would have on the feasibility of the accelerated construction schedule. Specifically, would the accelerated schedule still be possible if the prison closure were delayed?

RESPONSE

Legislation approving the design/build process for construction of a new prison has been passed and the prison is expected to be decommissioned in 1991. No part of the secondary treatment facilities can be built until the prison is removed, so the secondary treatment portions of the accelerated plan could not be built on schedule if prison decommissioning is delayed.

EFFLUENT OUTFALL AND WATER QUALITY

Water quality impacts of the new secondary treatment facilities on Deer Island will occur at the site of the effluent outfall. The effluent outfall consists of a deep rock effluent tunnel originating from a vertical shaft at Deer Island and terminating at a diffuser structure to be located in an area of Massachusetts Bay between 7.9 and 9.4 miles east-northeast of Deer Island. Under present conceptual plans, the diffuser structure will likely consist of 80 vertical riser shafts connected to the effluent tunnel spaced along the final 6600 feet of the tunnel. The riser shafts will disperse treated effluent into the ocean environment through discharge heads at the ocean floor.

Determinations of effluent outfall design and location considered physical, chemical, and biological oceanography, geology, construction methodology, and cost. The effluent discharge area selected represents the most favorable mix of outfall site characteristics to minimize water quality impacts. The discharge area is well within the large-scale circulation patterns of Massachusetts Bay and therefore provides the most robust long-term mixing. It is an area of limited potential sediment accumulation and thereby avoids problems associated with concentrating pollutants in bottom sediments. It is located away from intensely utilized near-shore resources, avoiding the potential for disruption. Finally, the location for the diffuser can be reached by a gravity flow effluent tunnel within a timeframe consistent with the spirit of the court-ordered target dates for treatment facilities construction.

The diffuser construction will entail a small degree of disruption of the benthic habitat; however, the impact will be short in duration and rapid recolonization of the area adjacent to each riser is expected. The diffuser structure will have minimal impacts on such commercial activities as bottom trawling since the area is not actively trawled by commercial fishermen due to lack of bottom conditions favoring trawling and conflicts with fixed gear (e.g. lobster pots).

The discharge of wastes through the diffuser during facility operation is expected to have minor impacts on the marine resources in the vicinity of the diffuser. Suspended solids contained in both the primary and secondary effluent discharged will settle. However, the amount of sediment buildup will be significantly less than tolerable levels. The potential for bioaccumulation of toxic materials in the sediments within the study area is considered to be small because of the dispersive

nature of the environment, and thus would not adversely affect the benthic environment.

Many comments questioned the methods and results of the oceanographic studies leading to the location of the outfall diffuser structure. The physical oceanographic studies performed for MWRA during the diffuser siting process demonstrate that the outfall diffuser is well within the offshore region where vigorous, variable currents will provide adequate dilution and transport. Field observations were used to calibrate and validate a numerical model of pollutant transport. The model was used by the MWRA to predict likely concentrations of contaminants in Massachusetts Bay resulting from the proposed discharge.

The model demonstrated that the recommended discharge would be sufficiently diluted to meet state water quality standards and most of the EPA water quality criteria. With secondary treatment, 55 of 60 criteria are likely to be met. Those pollutant criteria that were likely to be exceeded fall into two categories: chemicals for which the exceedence was due to high concentrations already existing in the environment, and chemicals which, if they are present in the effluent, have such low concentrations that they could not be measured in the MWRA sampling program.

The MWRA results were confirmed by EPA, as documented in the Final Supplemental Environmental Impact Statement on the Boston Harbor Wastewater Conveyance System. The EPA screening analysis, which included a site beyond the recommended area (Site 6), showed that no significant benefit could be gained by discharging at the more distant site.

The proposed discharge will yield considerable environmental benefit over the present situation, even without the improved treatment which will be provided by the new Deer Island treatment facilities. The initial dilution of effluent will be greatly increased because of the greater depth of the outfall. Improvement can be expected throughout Massachusetts Bay. As an example, the effluent reaching Nahant from the proposed diffuser site will be nine times more dilute than the effluent reaching Nahant from the existing primary treatment facility outfall in President Roads.

Concern has been voiced for not studying a discharge site further offshore. In fact, sufficient evidence exists to conclude that Site 6 would not provide a dramatically greater measure of environmental protection. Measurements of temperature and salinity near Site 6, taken as part of an analysis of nutrients in Massachusetts Bay, show that this area is similar to the recommended diffuser area. Currents, salinity, and temperature were measured east of Site 6 by the U.S. Geological Survey around the same time as the MWRA field program gathered

data nearer to shore. From preliminary results of this program it appears that the tidal and residual currents are of similar magnitude to those measured around the recommended diffuser location. Planned monitoring programs will provide a more detailed description of conditions in the area.

In making the decision about the outfall diffuser location, the MWRA considered existing data and the results of its own oceanographic studies. The studies and criteria upon which the decision was based were developed with significant input from regulatory agencies, scientists and citizens. MWRA is confident that the planned outfall tunnel and diffuser and the general location of the diffuser provide best combination of favorable conditions which can be reached with reasonable means.

Precise location of the diffuser structure within the general area described in the Secondary Treatment Facilities Plan will be carried out during the final design phase. Final diffuser location decisions will be based upon the results of ongoing geological investigations and detailed design of treatment facility hydraulics. One season of successful test borings and geophysical work has been completed and has yielded data indicating desirable conditions for tunnel boring along a route to the proposed outfall diffuser area. An additional season of geological data gathering will take place following the winter of 1988-1989 to provide additional input to tunnel and diffuser design and location. Findings to date indicate that conditions are favorable to locate the diffuser structure within the area described in both the Secondary Treatment Facilities Plan and the Boston Harbor Wastewater Conveyance System Final Supplemental Environmental Impact Statement.

Additional information for precise diffuser location and design, and for subsequent diffuser performance evaluation, will result from the MWRA's Harbor Study Program. The MWRA has committed funds and personnel to examine the existing data on Boston Harbor and Massachusetts Bay and to initiate long term biological and chemical monitoring to describe existing conditions and evaluate the impacts of the treatment facility discharge once initiated. Monitoring will take place in locations throughout Massachusetts Bay including areas seaward of the diffuser location. Protocols for this monitoring are being developed in cooperation with concerned agencies and academic institutions including MEPA and Massachusetts Office of Coastal Zone Management.

A small scale, and subsequently, a large scale pilot plant will be constructed to test treatment processes for the new treatment facilities. Data resulting from the operation of the pilot plants will be used throughout the design process, including the design and location of the outfall diffuser. Diffuser location, as recommended by the Secretary, will remain

flexible enough to allow for modifications if the results of future pilot plant studies justify modification. Factors to be considered in evaluating potential modifications are; environmental impact, ability to construct, schedule considerations, and cost. Physical modeling of the outfall and diffuser will also be undertaken, as suggested by EPA's Final Environmental Impact Statement, to refine design and location.

The MWRA is proceeding with planning and design as described in the facilities plan and is committed to incorporating information resulting from the previously mentioned sources in final design decisions to the maximum feasible extent.

COMMENTS AND RESPONSES

FPCAC

COMMENT

Throughout the past twenty months, the siting of the outfall has generated the most active committee and scientific community involvement. It is well-recognized that the outfall siting requires decision-making in spite of scientific uncertainty. Therefore, the FPCAC supports a program for on-going basic research and monitoring (including at site 6). At this time, this research should not interfere with the project schedule, but should aim to confirm current decisions.

In addition to the scientific uncertainty, the siting decision is made even more difficult because of the guideline nature of the federal water quality criteria and the lack of defined state standards (see Volume VIII, response to comment 4, pp. 6-418 to 6-421 FEIR). As a result, the committee spent considerable time composing evaluation criteria in order to have some basis upon which to decide if the preferred alternative is "good enough".

As a consensus opinion, the FPCAC accepts the Plan's proposed siting of the outfall and diffuser in the site 4.5/5.0 area (the beginning of the diffuser should not start before site 4.5). The committee understands that a more specific siting cannot be determined until after geotechnical work is completed. The MWRA should consider additional environmental review and evaluation of the exact outfall and diffuser site. The Plan's evaluation criteria should be used to assess the impacts at that specific site. Additional cost difference analyses should be done between specific sites (including site 6) once the geotechnical information is known.

Throughout the outfall siting discussion, there have been two strong minority opinions. Statements from each will be submitted separately. One contends that an additional, more distant, site 6 has numerous, including cost, benefits over the other sites. Site 6 offers less rich marine life, deeper waters, greater diffusion, and discharge into the Gulf of Maine intermediate waters.

The second, has serious questions about the workability of an outfall of the proposed length. It is suggested that perhaps a shorter outfall could yield comparable impacts if primary effluent were never discharged.

RESPONSE

Ongoing research and monitoring is taking place under the MWRA Harbor Studies Program as described in the introduction to this section. Flexibility to modify the outfall and diffuser design will be retained to allow results of monitoring geotechnical and pilot plant studies to influence final designs.

In addition to the information in the introduction to this section, several other issues should be considered. Both the MWRA and EPA have reached the conclusion that Site 4.5 and Site 5 will provide a sufficient margin of safety to ensure that plant effluent does not wash ashore on any beaches, including Nahant.

The rationale behind that conclusion was as follows. The outfall will discharge mixed primary and secondary effluents in the mid-1990's and full secondary effluent by the end of the century. Redundancies in the treatment process ensure that the effluent always receives disinfection. Our permit requires that our undiluted effluent meets the fecal coliform swimming standard. A worst case analysis shows that in the worst conditions of winds and currents, it will take fifteen hours for the safety margin of greater than 100. Analysis of current meter data collected by the US Geological Survey shows that site 6 is in the same general current regime and could provide an extra margin of safety of 20-40%. Background variability is high enough to make it unlikely that monitoring programs would be able to detect the differences between these two outfall locations on the water quality of Nahant's beaches. In addition, removing the current discharges of sewage effluent and sludge to the mouth of Boston Harbor should improve the water quality along Nahant's shores.

At sites to the west of site 4, the circulation patterns could result in high nutrient concentrations and failure to meet the dissolved oxygen standard of 6 mg/l. These high nutrient concentrations would not be ameliorated by secondary treatment.

Secretary's Certificate

COMMENT

The Response to Comments should investigate whether significant mitigation is available by use of areas beyond site 5. I do, however, note that the DEQE, the Office of Coastal Zone Management, and the U.S. EPA have concurred in the choice of the proposed outfall site. This may best be resolved by adopting the proposed outfall site at this time and examining the benefits of a longer outfall versus its cost in the Response to Comments.

RESPONSE:

The MWRA has stated throughout the course of the Facilities Plan that the recommendation for the outfall location would be flexible enough to allow for modifications if the results of future studies indicated the need for revisions. Thus, the MWRA concurs with the Secretary's recommendation that the proposed outfall location be adopted and a final decision in the exact outfall location and diffuser configuration be left until the results of further outfall tunnel and diffuser studies are complete. Further, the MWRA has committed funds and manpower to initiate and participate in a long-term monitoring program of Mass. Bay in order to evaluate the impacts of the proposed

discharge. As suggested, the scope for this study program will be available for agency and public comment prior to implementation.

EPA

COMMENT

We ask that the Secretary require MWRA to prepare a response to an issue raised in our February 19, 1988 letter to Jack Elwood containing comments on Appendices D and E of Volume V. The issue is the lack of justification for selecting the 80 drilled riser diffuser over a pipeline diffuser. Page D-16 admits the "report focuses on the simplest alternatives...to insure meeting court-mandated deadlines..." but both draft and final Volume V treat this design as definitive. In Chapter 4 of Appendix E, MWRA conducted a cost comparison of an eight riser pipeline diffuser to a 20 drilled riser diffuser for a diffuser length of 5,000 feet. However, there is no analysis presented for the actual diffuser alternatives of a 6,600 foot diffuser with either one to ten risers extending to a pipeline diffuser or an 80 drilled riser diffuser.

RESPONSE

The following is a comparison of three diffuser types for a 6,600 foot long diffuser. This comparison is based on a diffuser to be located in the recommended outfall zone in the area of sites 4.5 and 5, as indicated in Figure 1. Based on the initial results of ongoing geophysical studies, site conditions appear to be suitable for all three diffuser types.

Alternative 1 (shown in Figure 2) is an 80 riser diffuser. Each riser is drilled from the seabed down to a rock tunnel. The 80 risers are equally spaced along 6,600 feet of rock tunnel. The project cost of Alternative 1 is \$160,000 million. This cost includes the 80 risers and the 6,600 feet of tunnel located below the diffuser. Alternative 1 is a constructable design. This concept has been used at other locations. Construction impacts of this alternative is also less than for the other two alternatives, which would require significant dredging of the seabed.

Alternative 2 (shown in Figure 3) consists of eight risers from the main tunnel to the seabed. Each riser connects to an 804 foot long pipe diffuser for a total diffuser length of 6,600 feet. The project cost of Alternative 2 is \$140 million. This cost includes the pipe diffuser, the risers and the rock tunnel below the diffuser section. Alternative 2 is a constructable design, however, there are significant environmental impacts from the dredging of the diffuser trench.

Although this concept has been used at other locations, problems have been encountered with this design in some instances. Construction of San Francisco's wastewater treatment plant outfall is an example of the risk involved in laying large

diameter pipelines in the ocean. This project involved laying 4.5 miles of 12 feet diameter concrete pipe from a custom-built barge. During construction in 1983 severe winds and waves knocked the barge from its moorings and beached it. This disaster caused extensive damage and set the project back 17 months and millions of dollars. Installation of the design for Alternative 2 will involve laying pipeline up to 10 miles from shore. In the absence of a catastrophe such as occurred in San Francisco, the diffuser could be in service by December, 1994. Also, less risk would be encountered during construction of eight 804 foot sections than a single 4.5 mile section as in San Francisco.

Alternative 3 (shown in Figure 4) consists of a 6,600 foot pipe diffuser. The diffuser connects to a rock tunnel via a single large diameter riser. The project cost of Alternative 4 is \$160 million. This cost includes the pipeline diffuser and the riser from the rock tunnel. To the STFP project's knowledge, constructability of a 24 feet diameter pipeline or of a single 24 feet diameter riser in an ocean environment has not been demonstrated at any other site. Construction of this alternative would be subject to the same weather-related risks as Alternative 2. Alternative 3 also requires dredging of an ocean trench for the pipeline diffuser.

The alternatives described above indicate the three concepts which have been evaluated. These concepts are considered to be conservative designs as a result of the conceptual nature of the facility planning effort. The Final Facilities Plan selected Alternative 1 as the preferred option. The final design of the diffuser will incorporate the results of physical model studies. It is expected that the model studies may demonstrate that fewer risers are viable. As the number of the risers decreases, the cost of Alternative 1 will also decrease. These designs will also be revised as data become available from offshore geophysical and rock boring programs. As these added data become available, the three diffuser alternatives should be reevaluated in terms of constructability, risk, schedule, cost and environmental impact of each construction method.

COMMENT

Another concern we have is that the predicted solids concentrations in the secondary effluent, exhibited in Appendix H of Volume V, changed from the draft to the final reports. Comparison of Figures 3.6-3.10 in the draft and final documents indicated about a 20% increase in accumulation when the assumed secondary total suspended solids concentrations increased from 15 to 17 mg/l. Yet no change in accumulation was shown under the primary scenario when concentrations were reduced from 70 to 55 mg/l. It is not clear in any of the documents why the changes were made, why the deposition rates for primary did not change or if the new rates were used in subsequent analyses (such as sediment toxicity). We plan to meet with MWRA in the near future to clarify these discrepancies.

RESPONSE

Changes were made to the sediment accumulation plots presented in Appendix H to Volume V because of errors made in the draft STFP. The changes are shown below:

The correct average suspended solids concentration in primary effluent is 55 mg/l. This concentration was used to make the plots presented in both the draft and final versions of Appendix H. The text in the draft Appendix H, however, implied that a TSS concentration of 70 mg/l was used. This description was incorrect, and was changed in the final Appendix H. The primary effluent sediment accumulation plots did not change between draft and final versions because they were plotted correctly in both instances.

The plots of sediment accumulation for secondary treatment effluent presented in the draft Appendix H were incorrect; the correct plots were used in the final version. Secondary effluent accumulations are calculated by multiplying the primary effluent sediment deposition rates for each of two settling velocities by the ratio of average TSS concentrations for secondary effluent to primary effluent and then compositing the results of the two settling velocities for their distribution for secondary effluent as given in Section 3.5.4 of Appendix A to Volume V. In the draft Appendix H, an incorrect ratio of average TSS for secondary and primary effluents was used; it was 15 mg/l: 70 mg/l. In the final Appendix H, the correct ratio, 17 mg/l:55 mg/l was used. This is the reason for the "apparent" increase in secondary effluent sediment accumulations.

COMMENT

Volume V, Appendix B. Predicted sediment concentrations of toxic compounds are presented in Table B-57 (p.B-324) of Volume V, Appendix B. These are not consistent with the values presented in Appendix CC. Also, there is not a clear or complete description of how the concentrations were calculated so it is not possible to verify either set of predictions. Table B-57 references Table 3.5.14 and 3.5.16 in Appendix A which were used to calculate the numbers provided in B-57. Yet, it is unclear how these values were derived. The predicted concentrations at the outfall sites were considerably lower than existing concentrations (without an outfall) and with those predicted in our Supplemental EIS. Those concentrations listed in Table B-57 and Appendix CC were three to four orders of magnitude lower than the effluent particles (Tables 3.5.14, 3.5.16), three orders of magnitude lower than the existing sediments (Table B-57, Appendix S) and more than two orders of magnitude lower than the concentrations predicted in the Draft Supplemental EIS. The methodology should be clarified so that our differences in the level of impacts can be resolved.

RESPONSE

The predicted sediment concentrations of toxic compounds presented in Appendices B and CC to Volume V were derived for use in the Public Health Risk Assessment (Appendix C to Volume V). Section 4.3.2 of Appendix C presents the methodology used to calculate predicted sediment concentrations. Also, Table C-26 in Appendix C provides the correct predicted sediment concentrations for toxic compounds.

These concentrations were computed by calculating the average sediment deposition rate over a 50 km² area (including the deposition of natural sediments) and dividing this average rate by the 1000 km² area covered by the four NMFS subzones considered to be the source for fish that would be contaminated via an outfall discharge; this method is appropriate for the Public Health Risk Assessment.

For the purposes of the comparisons being made in Table B-57, use of the NMFS subzones area will produce concentrations that are quite low. Given that most of the sediment deposition occurs over an area of about 10 km², use of this area would provide a more realistic assessment of possible effects on benthic species. Thus, the approximate two orders of magnitude difference between sediment concentration in the STFP (Appendices B, C, and CC) and the Draft Supplemental EIS would be explained if an area of 10 km² instead of 1000 km² is used. If this is done, the conclusions drawn in Appendix B do not change; the predicted sediment concentrations of toxics are still below the toxicity values given in Table B-57.

Also, it should be noted that the concentrations listed in Appendix CC (Table 5) were prepared for the draft report. When the new sediment concentrations were calculated for the final DISTFP, new values for contaminant concentrations in edible species (shown in Appendix CC) were determined. The new species contaminant concentrations are shown in Section 4.3 of Appendix C. It should be noted that Appendix CC was not updated. However, Appendix CC was re-distributed as part of the final DISTFP because the methodology for calculating species contaminated concentration was still valid. Appendix CC will not be revised and the reader is referred to Appendix C for details on contaminant concentration in edible species.

COMMENT

Volume V, Appendix BB. The toxicity test results are only briefly referenced in Volume V and are not used at all in the comparison of alternative outfall sites. There should be a detailed comparison of predicted dilutions in Chapter 7 of Volume V to measured percentages of effluent which cause toxicity for each alternative site.

RESPONSE

The disinfection alternatives analysis, which involved toxicity testing, was designed to evaluate the impacts of the discharge on marine organisms and was not used as a site

selection tool. Thus, the results were not presented in the site evaluation section (section 7) of Volume V, but rather the results were presented in the impacts section (Section 8) of the document. One could determine the concentration of effluent which would cause toxicity at each site simply by dividing effective concentration (NOEAL, etc) into 100 and comparing the results to the minimum dilution at a particular site. If the dilution required for no effect (100/NOEAL) is lower than the minimum available dilution, than toxicity would not occur at that site.

DEQE

COMMENT

Volume V, Page 7-2: The report indicates that, depending upon the depth of bedrock at the diffuser site, an effluent pump station may in fact be required. This is the first indication the Division has received that a pump station might be required for a discharge landward of Site 5. The report should include additional discussion regarding this issue, particularly concerning the economic assessment of the gravity versus pumped outfall options.

RESPONSE

As described in Section 7 of Volume V, the recommended plan for the outfall is a gravity-flow system to an area between sites 4.5 and 5. The MWRA has stated that this system is a reasonable and workable plan for this stage of the project but realizes the need to study hydraulic issues carefully during the design portion of the project. It should be noted that cost comparisons for an effluent pump station option have been conducted, as shown in Volume V, Appendix E, Section 5.0.

COMMENT

Volume V, Page 7-5: For all sites except Site 5, the construction of the 80 riser diffuser is on the critical path and controls the outfall completion date. For Site 5 the outfall tunneling controls. This critical path scenario also assumes that there will not be any significant design or construction problems encountered regarding the tunnel construction. The report should provide further discussion regarding outfall construction contingencies.

RESPONSE

A description of the diffuser construction is included in the final EIR/EID in Section 3.3.2 of Appendix E to Volume V. There is risk associated with cost, schedule and safety associated with all construction in an open ocean environment. The STFP project is confident that the schedules for the recommended plan are achievable. This confidence is based on the following items:

1. The diffuser alternative selected has the lowest risk of the alternatives evaluated.
2. The implementation schedules are based on an 80 riser diffuser. Final design of the diffuser would be expected to reduce the number of risers.
3. The schedules assume a four month winter shutdown during construction.

Three alternative diffuser designs were considered. The diffuser design selected consists of drilling risers from a jack-up barge or from a semi-submersible drilling platform. This construction technique was used successfully on the diffuser for the Seabrook Nuclear Power Station, located 40 miles north of Deer Island.

The construction schedules for the diffuser are based on an 80 riser diffuser. It has been recommended that the final design of the diffuser be completed after a physical model study has been performed. It is expected that this model study will determine that a diffuser with less than 80 risers is feasible. Any reduction in the number of risers will reduce the construction duration.

Included in the diffuser construction schedules are two, four month winter shutdowns. These shutdowns account for bad weather delays as well as planned shutdowns. The two alternatives which were not selected required placing pipe in an excavated trench on the ocean floor. This pipeline construction would require extensive use of barges for dredging, backfill, pipe placement and pipe transportation to the site. These barges are more susceptible to storm damage and weather-related delays than a jack-up barge or a semi-submersible drill rig. An example of the risks associated with pipeline construction from barges is the wastewater outfall line installed in San Francisco. That project was delayed 17 months after a custom designed pipe laying barge broke free from a mooring and was beached.

A description of the tunnel construction is included in Section 3.3.1 of Appendix E to Volume V. The outfall system construction schedule for site 5 is controlled by the tunnel construction. The duration of tunnel construction is based on an advance rate of 70 feet per day. For the type of rock expected along the tunnel route, this is a moderate advance rate and includes allowances for expected equipment problems.

At the present time, a boring program is underway to sample the bedrock along the tunnel route. Once this program is completed and the rock samples have been evaluated, the assumed tunneling rate of 70 feet per day will be reviewed to determine if this rate should be increased or reduced. The risk of not meeting the schedule can be better evaluated at that time. If Site 5 is selected and the expected advance rate were reduced, it may be necessary to re-evaluate the concept of tunnel construction from two headings. Construction of the tunnel from two headings might shorten the schedule but would be more costly and likely have greater environmental impact.



COMMENT

Volume V, Page 7-9 and 7-10 and other portions of the report: The discussions regarding the two environmental criteria, "Ability to Meet EPA Ambient Water Quality Criteria", and "Ability to Meet State Guidelines for the Use of EPA Water Quality Criteria", is both confusing and inaccurate. The report seems to indicate that EPA utilizes a 10^6 excess cancer risk factor while DEQE is less conservative and utilizes a 10^5 risk factor. EPA's "Gold Book" provides water quality criteria figures for three risks: 10^5 , 10^6 and 10^7 to allow for risk management decisions.

COMMENT

The report does correctly interpret correspondence issued by DEQE dated May 15, 1986 which indicated that a 10^6 risk factor should be a goal to strive for, but that a 10^5 risk factor is acceptable for the outfall siting. EPA reviewed a draft of this May 1986 correspondence and agreed to the goal/requirement risk factors. Therefore, the report should not have indicated that EPA and DEQE interpret and utilize the Gold Book Water Quality Criteria differently. As can be clearly seen by reading EPA's Draft SEIS document, EPA and DEQE clearly agree on the procedures for utilization of EPA's Water Quality Criteria. This is an extremely important issue which should be clarified in a supplemental filing by MWRA.

RESPONSE

The MWRA contends that the description regarding these criteria is quite accurate. The report does not indicate that DEQE and EPA utilize different values for risk factors. On page 5-9 of Volume V, the report states "While the state has not yet established its toxicants policy, it did provide MWRA with guidance as to how the EPA criteria might be used in assessing the acceptability of alternative outfall locations." The document describes the EPA water quality criteria as the best available scientific information on the toxicity of wastewater effluent on marine organisms. The document also describes the State guidelines as interpretive tools which can be used by the Authority to evaluate the acceptability of a potential outfall location. Volume V does not state that EPA and DEQE utilize Water Quality Criteria differently. Thus, the MWRA has presented a clear and accurate representation of use of these criteria.

COMMENT

Volume V, Page 7-31 incorrectly states that SA Waters have a bacterial standard of 14 fecal coliform per 100 ml of sample. This is the FDA shellfish growing area classification standard for overlying waters. The DWPC SA Water standard is 70 MPN total coliform (not fecal) per 100 ml of sample. The document correctly states that the existing NPDES permit for MWRA's POTW's

has a bacterial requirement of 400 fecal coliform per 100 ml of sample in the effluent. The 400 fecal coliform standard is appropriate for the existing Deer Island discharge into the SB water of President Roads. The new outfall on the other hand will discharge into Class SA waters and will therefore need to meet the 70 total coliform standard at the edge of the mixing zone.

COMMENT

DWPC currently incorporates into all of its marine discharge permits the same disinfection/bacterial reduction requirement whether their outfalls discharge to SA or SB waters, that requirement beginning to have no more than 400 fecal coliform colonies per 100 ml sample in the effluent. This figure is based upon historical information which indicates that a properly operated POTW, which utilizes chlorine for disinfection, will be capable of consistently reducing fecal bacterial concentrations to the 400 per 100 ml level. The Authority must still demonstrate to DWPC that at the edge of the mixing zone the ambient waters will have a total coliform level no greater than 70 per 100 ml of sample. Since the FDA standard must be met for the overlying waters to allow for classification of a shellfish growing area as "Open", and since FDA will require a mandatory closure zone around the actual outfall a certain area of Mass. Bay in proximity to the outfall will be closed to shellfish harvesting.

RESPONSE

The value of 14 fecal coliform was inadvertently used in the Draft DISTFP and was carried through the final version. In order for the discharge to meet the Class SA ambient total coliform limit of 70 coliform/100 ml, the discharge coliform level would have to be below 2800 total coliform/100 ml, assuming a minimum initial dilution of 40:1 at the recommended outfall region.

A review of previous discharge records (1985-1986) indicates that the mean total coliform levels were 289/coliform 100 ml and 250 coliform/100 ml for Deer Island and Nut Island, respectively. The 95% confidence levels were 662 coliforms/100 ml and 1400/100 ml for Deer Island and Nut Island, respectively; well below the 2800/100 ml necessary to meet the limit. Since the proposed facility will operate more efficiently than the existing facilities, the MWRA contends that the Class SA total coliform limit will be met at the recommended outfall region.

COMMENT

Volume V, Page 7-33 has inconsistent statements regarding Site 4.5 as it relates to lobster and finfish resources (see paragraph 2 and 4 of the section titled Protection for Commercial On-the-Water Activities).

RESPONSE

Volume V, on Page 7-33, in the second paragraph under "Protection of Commercial On-the Water Activities" the discussion relating to resources inadvertently included Site 4.5 as a highly productive fishing area. Site 4.5, referred to in the fourth sentence in that paragraph, should be disregarded. This term was inadvertently used in the Draft DISTFP and was carried through the final version.

COMMENT

Volume V, Page 8-53: The report erroneously states that fecal coliform is the indicator used by EPA for assessing safety of drinking water. Public water supplies must have a monthly average less than 1 colony of total coliform - not fecal - a significant difference.

RESPONSE

This comment is correct. In the first sentence of the fourth paragraph, Volume V (p.8-53) the word "Fecal" should be disregarded.

COMMENT

Based upon the information presented in the documents the fast-tracking of 25 percent of the secondary portion of the WWTF will have no measurable environmental benefit on the receiving waters. Its benefits can only be assessed based upon lowering of the expected degree of exceedences for various EPA Water Quality Criteria and slight increases in D.O. within the mixing zone. The average percent reduction during the period 1996 needed to meet EPA's Water Quality Criteria for the Alternative Plan and the Base Plan at Site 4.5 are 75 percent and 81 percent respectively, while at Site 5 they are 72 percent for the Alternative Plan as compared to 77 percent for the base plan. Further detailed discussions must be held among MWRA, EPA and DEQE to discuss the expected water quality benefits and the potential adverse impacts to other aspects of this cleanup program, particularly residuals management.

RESPONSE

The MWRA believes that this comment is misleading. Specifically, the statement "the fast-tracking of 25% of the secondary portion of the WWTF will have no measurable environmental benefit of the receiving water," missed the point of the discussion of the alternate plan. Volume V shows that, compared to the base plan, the alternate would have less impact on marine organisms (during the period prior to full secondary treatment). In short, additional treatment increases removal of BOD, suspended solids, and toxics.

COMMENT

Although nutrient spike experiments indicated that various combinations of NH₄, PO₄, and SiO₂ stimulate production, there were no studies conducted to determine the limiting nutrient.

DWPC is not, however, insisting that additional work be scheduled solely to address this issue because its overall ecological significance with regard to the outfall siting is unclear. DWPC does however recommend that this issue be further addressed by MWRA during ongoing monitoring and assessment activities.

RESPONSE

Studies to determine the limiting nutrient were not part of the scope of study prepared by the MWRA and submitted for agency and public review. However, inferences can be made from the nutrient spike experiments contained in Volume V, Appendix Z. While the MWRA has committed funds and manpower to initiate and participate in a long-term Bay-wide monitoring program, the scope of these studies has not been determined. Experiments similar to those suggested in this comment will be considered when the monitoring program details are finalized.

COMMENT

Changes in phytoplankton community structure, resulting from nutrient additions, are well documented in the scientific literature; there is no evidence that the phytoplankton community in the waters of Mass. Bay will remain unchanged when exposed to increased nutrients associated with the outfall. The possible effects of nutrient additions on phytoplankton community structure will be better determined by the 5-day test which we have been told is being performed this spring by MWRA, then by the 48-hour tests previously run.

RESPONSE

The MWRA agrees with this comment. The results of the 5-day experiments will be available soon.

COMMENT

It is the Division's understanding that in the near future MWRA will be performing toxicity tests on chlorinated-dechlorinated samples of a mock-up secondary effluent and that the results will be forwarded to DWPC for review and comment. The performance of this testing adequately responds to prior comments from the Division.

RESPONSE

The results of the toxicity tests on mock-up secondary effluent were made available to the Division as part of the FEIR. Specifically, the test results are contained in Appendix BB to Volume V.

Boston Redevelopment Authority

Paul Reavis

Assistant Director for Engineering and Design Services

COMMENT

It is essential, considering the six month delay in the start of outfall construction, that the MWRA continue to explore alternate construction methods to expedite the construction of the tunnel to assure that the schedule will be met. Any unforeseen problems could adversely affect maintenance of the construction schedule.

RESPONSE

The MWRA will continue to explore alternate construction methods during the preliminary design phase.

COMMENT

If substantially the same environmental benefits can be attained at a location close to site 4.5 as at site 5, the MWRA should consider the closer-in site as the terminus of the outfall in order to minimize the financial burden on the rate-payers.

RESPONSE

As explained in the introduction to this section, several factors will influence the final location and design of the outfall including: geological conditions, treatment plant design/hydraulic issues, pilot plant results, and cost.

Victor T. Mastone, Administrative Coordinator
DEQE/Board of Underwater Archaeological Resources

COMMENT

The information presented was insufficient to adequately insure that historical properties will not be adversely affected by the proposed activities. There is no documentary information for over half of the wreck sites located in the study area. A bias may exist in the documentary record to selectively not record locational or other information on wreck sites which do not pose a hazard to navigation.

Field research should include at minimum, sub-bottom profile and side-scan sonar investigations.

There is a need for additional research, particularly field investigations, to insure that no historical properties will be adversely affected by the proposed activities.

The BUAR must be consulted in case an underwater archaeological resource is encountered to determine if a permit from the BUAR would be required.

RESPONSE

In Appendix FF, Marine Archaeology of Volume V, Effluent Outfall, it is recommended that a field survey be conducted in the areas for which the potential cultural impact is the greatest. The report further recommends that a reconnaissance-level magnetometer field survey and sonar and sub-bottom profiling be performed. Appropriate anomalies recorded by the

field survey should also be further investigated by a Remote Operated Vehicle (ROV) or diver reconnaissance.

MWRA will initiate these additional marine archaeological surveys at the appropriate time and after consultation with the state archaeologist and State Historic Preservation Officer as well as the Massachusetts Board of Underwater Archaeological Resources.

Daniel B. Curll, President
The Boston Harbor Associates

COMMENT

The MWRA does not discuss the reason for the omission of a "no action" alternative on the outfall location in its response to TBHA.

RESPONSE

TBHA's original comment sought to have the existing outfall site location incorporated as an alternative into the facilities plan as an example of the extremes associated with a variety of alternatives. The comment recognizes that the extremes may not be selected, but that presentation of the information provided a useful point of reference. The MWRA notes that the existing site provides less benefit (as measured by dispersion, dilution, and dislocation) than any of the sites evaluated in detail in Volume V. Thus, it is readily concluded that this site would rank lower than any alternative discussed in Volume V. While the MWRA does not disagree that information on the existing site could be helpful, the report was written to discuss feasible options, therefore, the no-action alternative was not included.

WATER QUALITY

New England Aquarium

COMMENT

The New England Aquarium strongly maintains that the MWRA must make every effort to implement federal EPA Water Quality Criteria for listed organic and inorganic chemicals.

RESPONSE

While exceedences of EPA water quality criteria have been identified in the DISTFP, it has been shown that the MWRA discharge will comply with the intent of the criteria (please refer to Volume VIII, Section 6.5). Data from the DISTFP have indicated that these short-term exceedences will have no noticeable impact on marine organisms. In addition, it should be noted that the EPA and the DEQE have concurred with the Authority's recommendation. Thus the MWRA contends that a discharge at the recommended outfall location is acceptable and fully complies with the goals of the Federal EPA Water Quality Criteria.

COMMENT

The Aquarium is critical of the state's guidance recommending: 1) use of the one-in-one million or one-in-one hundred thousand risks as goal 2) in cases where the background levels exceed criteria, that the discharge meet the existing background levels.

RESPONSE

As described in Volumes V (Section 5.0) and VIII (Section 6.5), the application of these "criteria" are based upon State-developed guidelines. The reader is referred to these documents. It should be noted that the discharge of a constituent with the same or lower concentration than the ambient concentration cannot cause the ambient levels to increase above the existing level.

COMMENT

The Aquarium strongly concurs with state guidelines suggesting that where other contaminant sources interact to cause exceedences, the Division of Water Pollution Control develop a Waste Load Allocation for all discharges.

RESPONSE

DWPC presently performs waste load allocations on a routine basis.

COMMENT

According to the MWRA, in their response to the Secretary's Certificate, effluent toxicity tests show secondary treatment discharge will have no noticeable impact on marine organisms.

This conclusion is based on toxicity tests performed on the most sensitive species, Champia parvula. Does this conclusion hold true for primary discharge? Also of concern is that the mercury exceedence of water quality criteria in both the primary and secondary discharges may result in cumulative impacts on fatty species, such as bluefish and benthic invertebrates.

RESPONSE

As part of the DISTFP, the MWRA conducted a Disinfection Alternatives Assessment examining the relative toxicity of the three disinfection alternatives. As described in Appendix BB, the study was designed to evaluate the toxicity of disinfected secondary effluent. Thus, mock-up primary effluent was not evaluated in terms of relative toxicity.

It should be noted that this study did include a screening methodology using existing chlorinated and unchlorinated Nut Island, Deer Island, and combined effluent. While the quality of current effluent is expected to be much lower than future primary effluent, a worst-case evaluation can be made using the data in this report.

As shown in Table 25 of Appendix BB, of Volume V, the combined chlorinated effluent NOEC for Champia parvula was similar to that for the secondary effluent, although the test results were not conclusive. No combined effluent was more toxic to mysids than secondary effluent. This issue will be reevaluated during the pilot plant portion of the design phase of the project.

With regard to mercury exceedences, small exceedences of criteria occurred, but concentrations found in the bioaccumulation study showed mercury concentrations did not reach levels of concern.

COMMENT

The Aquarium maintains that the information presented in Volume V of the Facilities Plan, and in MWRA's response to outfall comments, does not amply justify exceedence of the federal Water Quality Criteria. Consequently, MWRA's contention that the recommended outfall location is "adequate in absolute terms" needs further substantiation.

RESPONSE

The MWRA has stated that there are several reasons why the discharge is acceptable in absolute terms. The Authority has conducted a series of analyses and the results indicate that the discharge would meet water quality criteria goals and guidelines and minimal impact to marine biota would occur as a result of a wastewater discharge at the recommended outfall location. As explained in the introduction to this section, MWRA is committed to additional data gathering and analysis to benefit final outfall diffuser design.

COMMENT

Does maintenance of ambient water quality criteria within the region bounded by sites 4.5 and 5 require significant progress with source reduction/pretreatment in the MWRA district?

RESPONSE

No, modelling was done assuming no changes in effluent concentration. Actual water quality is likely to be better than modelled because the MWRA has committed to a strong pretreatment and source reduction program in order to reduce the amount of pollutants discharged to the Bay. It is the Authority's belief that the pretreatment and source control measures will actually help to improve the water quality of the Bay.

COMMENT

In answer to several of our questions on the outfall report, we have been referred to MWRA's response to the Secretary's Certificate. We restate two questions which were not addressed in this response:

- 1) Is the proposed outfall location in attainment or nonattainment of Class SA water quality for conventional pollutants? What are the implications of the discharge with respect to maintenance of Class SA quality in the receiving waters? With the outfall, is attainment of ambient quality a goal, rather than an immediate requirement, projected to occur at some future time when the secondary treatment plant is on line and other sources of pollution (such as Salem Harbor and CSO discharges) are eliminated?
- 2) If degradation of Class SA quality is expected for certain parameters during the interim period of primary treatment and prior to implementation of a remedial program for CSO discharges, what are the sources (ambient levels, sediment resuspension, other discharges) of this noncompliance?

RESPONSE

At the recommended outfall location, the ambient ocean is currently in attainment of Class SA water quality for conventional pollutants, with the exception of brief periods when dissolved oxygen levels reach below 6.0 mg/l. When the new facilities (primary and secondary) are on-line, the total amount of oxygen-consuming materials will be reduced significantly. The models predicted that the recommended outfall will remain in attainment of Class SA waters, except for those brief periods when DO levels may reach below 6.0 mg/l. EPA's dissolved oxygen models were used by MWRA to predict dissolved oxygen concentration. MWRA will continue to test those predictions as part of its outfall monitoring program.

COMMENT

Our question regarding the potential for shifts in phytoplankton species composition from elevated nutrient levels has not been sufficiently responded to by the MWRA.

RESPONSE

As previously stated in Response #17 (Volume VIII, p.6-800) results of the first nutrient spike experiment conducted in the summer of 1987 indicated that various combinations of N&P & Si were stimulatory to phytoplankton species abundance. The numerical abundance of various species increased as a result of enrichment with nutrients, but these increases were proportionally distributed (e.g. the most numerically abundant species increased its abundance and remained dominant while less abundant species increased their numerical abundances but did not become dominant). Hence, there were no significant shifts in composition.

Since, phytoplankton populations are adapted to rapid increases in numerical abundance and primary productivity during "blooms", it is difficult to predict shifts in composition and even more difficult to predict how compositional shifts may affect other trophic levels. Nitrogen appears to be the growth-limiting nutrient for most species, however, silica and "grazers" also appear to play important roles in limiting excessive growth, particularly of diatoms, such that nutrient availability is only one factor to be considered in the assessment of impacts to phytoplankton processes and ecosystem functioning. A general discussion of increased primary productivity as it relates to other trophic levels is provided in Section 8.3.1 and 8.3.2 of Appendix B to the Final Volume V, under Food Web Effects. The second set of nutrient-spike experiments conducted in the Spring of 1988 were designed to more fully explore the effects of nutrient enrichment on local phytoplankton species composition and abundance at a critical point in the growth cycle (e.g. spring bloom). Results of these experiments will be available shortly but may not provide definitive data on the long-term effects of a wastewater discharge on phytoplankton composition and abundance of secondary impacts to other trophic levels. The Mass. Bay monitoring program is the most suitable forum for collecting data to address the long-term consequences of a wastewater outfall on phytoplankton communities in Mass. Bay.

EPA

COMMENT

Volume V, Appendix BB, (p.18) (Whole Effluent/Disinfection Toxicity). The addition of hypersaline seawater brine solution to adjust the effluent salinity resulted in a dilution of the effluent to approximately 80% of the original sample (section 2.2.2.8). This results in a 80% test effluent rather than a 100% test effluent solution. The implication to the "Lethal/Effective Concentration" data should be clearly explained and the data adjusted accordingly.

RESPONSE

The addition of hypersaline seawater brine solution to the effluent was a required and standard test procedure. The analyses in the document did not, report this dilution. The dilution would lower the effect concentration (NOEAL, etc) by 20 percent and thus require higher initial dilution. It should be noted that these calculations would not effect the outfall site evaluation process and the NOEC would be still met at the recommended outfall region.

COMMENT

Volume V, Appendix BB. Tables 7 and 8 (pp.21,22) indicated a significant decay in residual chlorine from the time the sample was taken to the beginning of the toxicity test. It is questionable whether the chlorine toxicity is tested, here, in the more dilute test solutions. When the chlorine is in low concentrations, other factors may also contribute to the exhibited mortalities.

RESPONSE

The chlorine levels were measured at the time of sampling, and prior to and after the toxicity tests. The protocol for these analyses was subject to agency review and was accepted prior to the study.

Due to the nature of the study, it is not surprising that chlorine levels would diminish over the time period between sampling and analysis. It should be noted that the purpose of the testing was to evaluate the effect of the feasible disinfection alternatives on marine biota. It was not necessarily an examination of chlorine toxicity. In the absence of on-site testing facilities, it is felt that this test method provides the best available assessment of the disinfection alternatives considered in the facilities plan.

COMMENT

Volume V, Appendix BB (p.25). Table 11 indicated significant mortalities in the 7 day minnow test for the September Deer and Nut unchlorinated samples in the 50% dilution. Explain why this would or would not effect the validity of the test results (comparison of chlorinated with unchlorinated toxicity). The report should indicate if there was any stress noted in the fish behavior during the first three hours when the dissolved oxygen values were low.

RESPONSE

Fish behavior indicative of stress due to low dissolved oxygen levels was not observed during the test period. While the high mortality in these tests cannot fully be explained, the MWRA contends that since the standard testing protocols were followed, the test results are valid.

COMMENT

Volume V, Appendix X (Bioaccumulation). Caged mussels were deployed at the Deer Island (stations DIL, DIP) and Nut Island (NUT) outfalls to assess bioaccumulation potential. The level of bioaccumulation is affected by the degree of exposure the organisms receive to the Deer and Nut Island plumes. To better interpret the bioaccumulation data, the report should give some assessment of the percent of time that the organisms are within the zone of initial dilution relative to tidal and current changes operating at each location. Also, the degree of cage fouling can also restrict level of exposures since it was noted that it restricts water flow through the cages (p.30).

RESPONSE

Because the zones of initial dilution are a very small area around the current outfalls, this assessment is not practical given the purpose of the study. Specifically, the study was designed to evaluate the bioavailability of pollutants in the discharge, which is exactly the information presented in the document. It should be noted that an assessment of the degree of fouling was presented in Volume V, Appendix X.

DEQE

COMMENT

Page 1-20: See Comment regarding page 11-77 in Volume III. Pages 10-158 through 165 of Volume III: Tables 10.6.7-3 and 10.6.7-6 have not been edited to reflect the actual AAL's. Corrected tables must be incorporated into final documents.

RESPONSE

The correct values for Allowable Ambient Levels are listed on Table 7.6.1 of Appendix E to Volume III, except for these VOCs:

<u>Compound</u>	<u>AAL (ug/l)</u>
Chloroform	0.43
Trans-1,2-dichloroethylene	110
Trichloroethene	6.1

Where there are differences, these values and the values on Table 7.6.1 should replace values listed on Table 10.6.7-6 of Volume III and on Table 3.4.4-1 of Appendix E.

AIR QUALITY

INTRODUCTION

The new treatment facilities at Deer Island will utilize advanced air quality controls. All tanks will be covered and odor and pollutants from the tanks will be removed from the exhaust by air pollution control devices. Detailed final design of the air pollution equipment has not been completed. Final design and permitting of all potential air pollution sources will be carried out in coordination with DEQE.

Comments and responses on air quality follow, and focus mainly on technical details which will be addressed in final design.



COMMENTS AND RESPONSES

David Graber, Winthrop Consultant

COMMENT

A summary discussion of Air Emission Control Facilities is found in Volume III, pages 11-63 to 66. Two areas of relatively small, but potentially significant, emission rates are not mentioned in that summary. Those are the South System Pumping Station loop seal vent gas (see Volume IV, p. 7-25) and the inter-island tunnel shaft vent gas (see Volume IV, p. 7-38). Also, would the aeration basin purge blowers (Volume III, p. 11-55) discharge to the emissions control system?

RESPONSE

The emissions control facilities described in Volume III and its Appendix E include capacity for emissions from the South System Pumping Station and shaft vents. The facilities do not, however, include capacity for the purge blowers for the aeration basins. Experience at other oxygen activated sludge plants showed that purging occurs infrequently (less than once per year), and therefore need not be included in the emissions control system.

COMMENT

The Town of Winthrop requests the opportunity to complete a conjunctive review of Volume III, Appendix E, (Air Emissions) and revised information comparable to that in Appendix H (energy) when plans for the latter have been finalized.

RESPONSE

A draft copy of the "Off-Island Utility Supply" report, which is a supplement to Appendix H of Volume III, has been provided for review by Winthrop representatives on July 18, 1988.

This document updates and revises previous information concerning sources of off-island utility supply, evaluations of routes for the off-island utilities (i.e., electrical power, gas and potable water), costs and implementation schedules. Winthrop and other interested parties will be kept apprised of the status of utilities including the sizing of the power plant through the design phase.

DEQE

COMMENT

Volume III, Appendix E, Page E-6: In paragraph 2, the last three sentences should be rewritten to read: "A proposed VOC emission increase of 40 TPY or more after the application of BACT (as required under 310 CMR 7.02) requires that the proposed

source apply LAER. Such "significant" increase of VOC's will also require emission offsets..."

RESPONSE

Sentence to be corrected as in comment.

COMMENT

Volume III, Appendix E, pages E-66 and E-67: Report explains why discharges from the fume incinerators and air purge system were not modeled in this assessment but then indicates that for the actual permit application these sources might need to be modeled.

DAQC has stated that the discharges from the fume incinerators must be modeled and incorporated into the overall project assessment during the actual permit application phase unless the Authority can provide information that the discharges will be "insignificant". As a point source discharge these facilities and all other ambient air discharges of pollutants must comply with BACT, at a minimum.

RESPONSE

Change sentence to read for these sources, air quality modeling will be needed for an air quality permit.

COMMENT

Volume III, Appendix E, Page E-87: The first two paragraphs discuss the points of maximum impact and the utilization of a separate ISCST model analysis using a closer 100 m interval grid to verify point of maximum impact. The report states that this refined modeling verifies the points of maximum impact. A more detailed receptor grid must be submitted for DAQC to verify this conclusion.

RESPONSE

The receptor grid is shown in Volume III, Appendix E, on page E-90.

COMMENT

Volume III, Appendix E, Page E-91: The conclusions of the report are as follows:

1. For all VOC's except tetrachloroethene the proposed facilities will have inconsequential impacts on the local population (All other VOC's are orders of magnitude lower than AAL's with the exception of Methylene Chloride which has a proposed maximum concentration one-half the AAL).
2. At the more easily accessible locations (neighborhood sites) all impacts were found to be insignificant.
3. Number the point at which tetrachloroethene exceeds the AAL is approximately 200 meters off the east coast of Deer Island. The AAL would be exceeded roughly 10 times per year

(AALs are based upon continuous lifetime exposure at a given concentration).

4. Tetrachloroethene is one of the most common industrial solvents in general use and it may be possible to use the Industrial Pretreatment Program to track down discharges and reduce the use or replace with another solvent.
5. It may be possible to design into Deer Island facilities specific processes to remove this contaminant from the waste streams.

Based upon this information it appears that the treated discharges from the POTW will not adversely impact the public even with access for walking/biking by local residents along the eastern edge of the island.

In addition, the report indicates that odors should not be a problem off the site with Methyl Mercaptan expected to have a maximum concentration of 0.16 ug/m³ while the odor threshold is 4.19 ug/m³, more than 25 times higher. In order to verify this conclusion, MWRA must submit a list of the references utilized to determine the odor threshold numbers.

RESPONSE

The restatement of the conclusions is correct. The references used are listed in Volume III, page E-11 of Appendix E.

COMMENT

Volume III, Appendix E, Page E-89: Table 7.6-1 has the incorrect listing for trichloroethene (should be 6.1 not 20.4). Also the references for the odor thresholds listed should be given. The Department generally compares the lowest published one for comparison against a one hour impact average.

RESPONSE

Change AAL for trichloroethene to 6.1 (from 20.4).

COMMENT

In order for DAQC to complete its air modeling technical review the following deficiencies must be addressed:

1. The procedure utilized for evaluating the AMBIENT model must be submitted to and agreed to by the Department in writing.
2. A more detailed receptor grid network beyond the 68 receptors utilized (page E-81) must be developed and submitted.
3. Volume III, Appendix E, Table 7.4.2-2 with the "Maximum 24-hour Pollutant - Specific Screening Results ug/m³" cannot be verified because it is not traceable back to any of the emission rate tables for the Oxygen or Air Systems. Also, it is unclear whether the concentration outputs are for Deer Island or Nut Island. Documents must be submitted which will allow DAQC to trace the model outputs.

4. Efficiency values for the air pollution control system need to be clearly indicated in the documents.

RESPONSE

1. PEI Associates, Inc. sent the documents requested by DAQC regarding the air quality modeling protocol on May 31, 1988.
2. The more-detailed receptor grid is shown in Volume III, Appendix E, page E-90.
3. These values do not need to be verified. All of these pollutants were also subjected to detailed dispersion modeling, and produced similar conclusions. Therefore, it is suggested that DAQC perform verification of the detailed dispersion modeling, using the information recently submitted instead of reviewing the screening-level results.
4. Volume III, Appendix E, page E-59 states that the air pollution control systems were considered to remove 95 percent of hydrogen sulfide and 85 percent of VOC's.

COMMENT

Volume III, Appendix H, Section 1.4.2 Economic Evaluation. The report states, "Additional air quality modeling will be performed as part of the final EIR, once the baseline has been established by DEQE." This statement is confusing. DEQE assumes that the comment was intended to indicate that additional modeling will be required as part of the air permit application. Please clarify.

RESPONSE

DEQE's assumption is correct: For the STFP, refined modeling was performed up through the 1994 phase of the project. Screening modeling was performed for the 1995-2020 project phase to provide preliminary impact analyses. MWRA concurs that additional modeling will be required for a permit application that applies to facility operation beyond April 1, 1992.

COMMENT

Volume III, Appendix H, Section 1.4.2, the report also states, "Refined modeling for the 1995-2020 time frame will not be required for the Facilities Plan, unless operating restrictions are indicated by the screening analysis." This comment is also confusing and should either be corrected or removed from the final document. The key determining factor regarding the need for refined modeling will be the specific unit discharges determined at the time of permit application.

RESPONSE

At the time of permit application, additional screening-level modeling will be performed using appropriate emission factors for the project. The results of this analysis will determine the need for performing refined modeling, in support of the permit application.

COMMENT

Volume III, Appendix H, Section 8.1.4 Results and Conclusions. In the third paragraph, the report states that since CO and VOC emissions are expected to decrease for all projected phases and alternatives (Table H-24), the application of 310 CMR 7.00 to CO and VOC emissions would not be required. This statement is correct but MWRA is still required to install BACT for these emission sources.

RESPONSE

MWRA concurs that BACT is required for all emissions sources, i.e., the DeLaval diesels and the cogeneration facility.

COMMENT

The last paragraph prior to Section 8.2 in Volume III, Appendix H, the report states that compliance with PSD for SO2 and TSP increment consumption (Table H-20) would be required due to their increases being larger than the "significant" definition. The report then states that the increase in the annual SO2 concentration during the 1990-2004 phase is "very small" compared to the Class II increments (Tables H-25 and H-20). The report then concludes, "Although the available portion of the increment is not known at this time, it seems unlikely that PSD increments would impose constraints on the project." This issue will need to be discussed in greater detail prior to permit filing.

RESPONSE

The purpose of the air quality assessment described in Appendix H was to provide a preliminary indication of air quality constraints that may apply to the project, and to address mandated informational requirements of the Facilities Plan. MWRA concurs that the PSD increment consumption issue can only be resolved at the time of permit application (recommended to be January, 1990 for any revision to the current permit on the DeLaval diesel generators, and January, 1991 for the new cogeneration facility).

Boston Redevelopment Authority

Paul Reavis

Assistant Director for Engineering and Design Services

COMMENT

In Section 5.0 (Existing Conditions), the ambient air-quality data summaries lack any discussion of carbon monoxide. The absence of a CO summary needs explanation.

RESPONSE

In the air quality analysis for Deer Island, Carbon Monoxide (CO) was discussed as a lesser precursor to ozone in response to

a DEQE comment. Table 5.2.4-1 of Volume III, Treatment Plant indicates the Massachusetts and National Ambient Air Quality Standards for CO. A discussion of ozone and its relationship to CO can be found in Volume III, Section 5.2.4, Air Quality.

HAZARDOUS MATERIALS

INTRODUCTION

Preliminary investigations of Deer Island and supporting water transportation facilities sites indicates the potential for hazardous materials to be present. Materials on Deer Island include asbestos in existing structures and the potential for limited areas of soil contaminated with petroleum products. Materials at the water transportation facilities are the subject of separate EIR's and investigations. The MWRA has or is in the process of performing 21E type investigations of all of these sites. Investigations include comprehensive sampling programs developed with and approved by Massachusetts DEQE.

The current status of the Deer Island investigation is that all historic research has been performed and field sampling is underway.

The Early Site Preparation (ESP) design consultant team has recently completed a draft report on the historical usage of oil and hazardous materials on Deer Island. The findings to date reveal that areas of concern are limited to those locations where past military, prison and sewerage treatment activities have occurred. In addition to the Phase I Historical Site Usage Report, a draft work plan has been developed and submitted to DEQE-Division of Hazardous Waste for their approval. The work plan identifies an exploration program and chemical testing program for those suspect areas identified in the Phase I report. The results obtained from the exploration and chemical testing program will be used to develop a remediation program, if necessary. Any remedial action required on Deer Island will be undertaken as part of the ESP construction phase prior to major earthmoving and demolition efforts in the areas of concern.

The ESP consultant team has also recently submitted an asbestos assessment study for all structures where suspect asbestos containing materials (ACM) are present. An abatement program is presently being developed and is scheduled to occur early in the ESP construction phase. The ACM will be removed and disposed of off-island in an approved manner.

The MWRA is committed to removing or controlling and proper disposal of all hazardous materials encountered in the construction of the Deer Island Secondary Treatment Facilities and supporting facilities. The MWRA seeks to protect its workers, contractors' personnel, and the public from hazardous materials encountered during the treatment facilities project.

COMMENTS AND RESPONSES

Secretary's Certificate

COMMENT

Any potential hazardous materials and the proposed response to clean them up must be discussed in the response document.

RESPONSE

Volume VI of the Final EIR/EID, section 6.1.2, (p.6-6) indicates that the results of a preliminary characterization of potentially hazardous wastes located on Deer Island have been provided to DEQE, and summarizes the screening level and remediation studies (if needed) which have been planned for execution during the Early Site Preparation engineering phase. The screening level assessment began on June 1, 1988; remediation plans, if needed based on the results of the screening level assessment, will be developed to dispose of any hazardous wastes in an approved manner.

WASTE DISPOSAL

INTRODUCTION

Disposal of existing wastes on Deer Island and those generated during the early stages of construction will be largely handled as part of the Early Site Preparation construction phase. The existing wastes to be disposed of: grit and screenings, and non-biodegradable and organic demolition materials generated as a result of early site preparation construction activities.

Grit and screenings consist of materials which have been removed from the sewage flow and landfilled on Deer Island over the last twenty-odd years. This material will be relocated to clear the area which must be regraded for future construction. The MWRA proposes to place the material in a secure landfill to be constructed in the southern landform on Deer Island. This landfill will be solely for the existing grit and screening on the Island, with the possible addition of a limited quantity of fixed scum. The landfill will be designed and permitted according to DEQE standards.

Non-biodegradable demolition materials consist of concrete, reinforced concrete, stone, and asphalt pavement which originates from existing structures and roads on Deer Island. It has been proposed that the MWRA dispose of the non-biodegradable demolition materials generated during the Piers and ESP construction periods on-island.

Approval has been granted to the MWRA from DEQE/DSWM to incorporate this material in the large landform to be constructed as a barrier on the northern portion of Deer Island. Future demolition contracts, prison and treatment plant, are expected to follow a similar track (i.e. requesting an on-island disposal waiver) for disposal of non-biodegradable materials.

Organic demolition and construction wastes consist primarily of wood, plaster, and other building and packing materials. The MWRA is currently evaluating the possibility of establishing a permitted demolition waste landfill on Deer Island to dispose of this waste. Constraints of space, timing, and cost affect this evaluation. If landfilling on the Island is not deemed feasible, transport to an approved landfill will be utilized for disposal. The MWRA is committed to disposing of wastes in an environmentally sound fashion and to utilize, wherever feasible, disposal on-site to minimize cost and transportation impacts, and to avoid filling valuable landfill space elsewhere whenever possible.

COMMENTS AND RESPONSES

Secretary's Certificate

COMMENT

While screenings and grit, as wastewater treatment plant residuals, can be authorized for disposal on site by the Division of Water Pollution Control, to incorporate demolition waste requires regulation as a landfill with site assignment and regulation by the Division of Solid Waste Management. As an alternative to this, it may be possible to incorporate inert materials of the Fort and walls into the landforms. The prison demolition material may be handled best at a separate approved facility, either on or off island. The Response to Comments must resolve this matter and identify the disposal plans for each type of solid waste.

RESPONSE

The Final EIR/EID, Volume VI, section 6.5.3, p.6-12 indicates that up to 50,000 yd. of material will be produced during the early site preparation period from the demolition of existing structures. The exact quantity will depend largely on the extent to which the Fort Dawes bunkers are required to be demolished. Most of the demolition debris will be produced from the existing concrete wall traversing the island, the Fort Dawes facilities including razing of bunkers, and the existing reservoir on top of the drumlin. A gross breakdown of the quantities of demolition debris which could be produced from these activities is as follows:

- Demolition of concrete bunker and wall -
approximately 43,000 yd, comprised of concrete with
reinforcing steel;

- Demolition of the reservoir -
approximately 4,000 yd of granite block;

- Miscellaneous wood waste, etc., 3,000 yd.

Demolition debris will not be incorporated into the planned grit and screenings landfill. Instead, The MWRA is planning to incorporate the "inorganic construction debris," i.e., the concrete, concrete with rebar, asphaltic materials and granite block materials, into the landforms as fill material. As "organic construction debris," the relatively small quantity of wood waste may be temporarily stockpiled on Deer Island and subsequently disposed of in a landfill to be located on Deer Island, or it may be hauled off-island for disposal at an existing, approved landfill.

Special construction procedures, including size limitation of demolition debris pieces and removal of protruding reinforcing steel, are currently being considered by the Early Site

Preparation Project to facilitate the appropriate disposal and reuse of these waste materials in the landforms. Preliminary discussions between the MWRA and the Division of Solid Waste have indicated that this disposal/reuse concept could be approvable contingent on the Division's review of the special procedures. This approach will eliminate the need for landfill site assignment by the Division.

It is expected that demolition debris from removal of the existing prison facilities, subsequent to the early site preparation activities, will be handled in the same manner indicated above.

ENERGY/POWER

INTRODUCTION

Currently the Authority is in the planning and design process for both interim and permanent electric power. A minimum of 20 MW of interim power is required on Deer Island by mid 1990, to support construction of the inter-island and outfall tunnels. Large quantities of electricity are required to power the tunnel boring machines and their support systems, as well as other treatment plant construction and operations. A total of 70 MW of permanent power should be available to operate the primary treatment plant in 1995, and the secondary plant in 1999.

Two independent sources of off-site power are presently being pursued: 1) Installation of an underground cable from the Boston Edison substation in Chelsea, through Revere and Winthrop to Deer Island (to minimize community impact and reduce costs. New water, gas and electric lines will be installed at the same time along a common route); 2) Installation of a submarine cable from the Boston Edison K-Street substation across Boston Harbor to Deer Island. One of these off-site lines needs to be installed by mid 1990 to provide interim construction power. This line will initially carry up to 70 MW of interim power and will be designed and sized to carry 20 MW of permanent power in 1995.

The plan for permanent power includes the installation of a combined cycle cogeneration plant on Deer Island; the plant is presently in the conceptual design phase, however, the Authority is having the P/CM conduct a feasibility study of the several sizing, financing, and ownership options, prior to proceeding with final detailed design. This cogeneration plant will be designed to burn both natural gas, and the methane gas produced during the treatment process. EPA requires that the MWRA provide two independent, complete sources of power, thus both on-site and off site sources are being pursued.

COMMENTS AND RESPONSES

Secretary's Certificate

COMMENT

The Winthrop and DEQE comments indicate substantial changes in potential sources including power lines and power plants, which must be addressed in the Response to Comments.

RESPONSE

A supplement to Appendix H, Volume III of the STFP has been prepared, entitled "Off-Island Utility Supply." This document updates and revises the information pertaining to the interim power supply source, and utility routes which were described in Volume III.

This supplement was submitted for agency review on August 19, 1988, and was listed for public review in the Environmental Monitor on September 13, 1988. The MWRA is conducting additional studies regarding the economics of onsite cogeneration.

DEQE

COMMENT

Volume VII, Page 5-9: the report indicates that the combined cycle plant will be divided into 2 phases, the first of which could begin as early as 1991. This issue needs to be described in further detail.

RESPONSE

Additional study regarding on-island power is underway as part of the conceptual design effort. DEQE will be advised of progress or changes to plans for generation.

COMMENT

This section in general should mention the requirement for re-permitting the DeLaval diesels in 1992 as specified in DAQC's CONDITIONAL APPROVAL. As a minimum, this re-application must demonstrate Best Available Control Technology (BACT) as defined at the time of the re-application. These same units may be subject to more stringent regulations in the future.

RESPONSE

The MWRA concurs.

COMMENT

Volume III, Pages 11-65 through 76: The power needs assessment should consider the status of the DeLaval 6000 KV diesels as indicated in the DAQC CONDITIONAL APPROVAL, and its

impact on the air issues. Note also the comments pertaining to page 11-77 (and page 1-20).

RESPONSE

Refer to the response to comments for Volume III, page 11-77, below.

COMMENT

Volume III, page 11-69: The report states that the impacts of permitting activities for both permanent power lines may be severe, resulting in a 48 month project implementation timeline. It is not clear from the statement what activity triggers the start of this timeline. Is the clock already running, or does the clock begin once the MWRA completes its Facilities Planning portion of the report? This should be clarified along with a brief discussion regarding impact upon plant construction if the first power line is not completed by January 1, 1992.

RESPONSE

A detailed description of the implementation schedule for off-island interim power and permanent power supplies, including permitting activities, is contained in a supplement to Appendix H for Volume III of the Final EIR/EID, entitled "Off-Island Utility Supply." This supplement revises and provides additional detail on the off-island utility supplies to Deer Island. The supplemental report indicates that 20 MW of interim power can be implemented in 1990. Critical activities which affect this implementation schedule include:

An agreement between the MWRA and BECo for providing electrical power has begun.

Geophysical survey work associated with the design of the cross harbor electrical cable route for interim power must begin; On August 19, 1988 the MWRA authorized Boston Edison Co. to proceed with the required design and geophysical surveys.

Eleven months for completing permitting activities are provided, which would allow for the earliest in-service date for interim power at approximately March, 1990.

This document was submitted for agency review on August 19, 1988 and was listed in the Environmental Monitor on September 13, 1988. Comments on the document will be responded to in a supplemental response to comments document.

COMMENT

Volume III, Page 11-72 and 77: The report discusses the utilization of the combined cycle plant in combination with the two 6,000 kw generators currently under construction at Deer Island. The report should note that the current DAQC permit for the two 6,000 kw generators only allows for operation of one unit at a time, and only up through April 1, 1992. If the MWRA intends to utilize both these facilities at once or to utilize either or both beyond April 1, 1992, the MWRA will need to submit

a full permit application to DAQC. The report should discuss a timetable for obtaining such approval.

RESPONSE

Implementation of the new, interim permanent power supply from BECo's K-Street Substation in South Boston in 1991 will provide for construction and treatment operations electrical power to 1995, as described in the Supplement to Appendix H, Volume III of the Final EIR/EID. To provide for contingencies, however, the MWRA concurs that a new (revised) permit application which would allow for simultaneous operation of both DeLaval diesel generators would be required. To this end, permitting activities should commence no later than one year prior to a potential electrical capacity shortfall. It is recommended that this permitting should begin in January, 1989.

COMMENT

Volume III, Pages 11-72 and 11-77: The information contained in Table H-8 of Appendix H is confusing and appears to be inconsistent with the text on pages 11-72 and 11-77. The bottom line from Table H-8 appears to be that a peak of 39,025 KW of power will be necessary and that only 6,000 KW will be available (one DeLaval Unit), which would indicate a shortfall of 33,025 KW yet the EIR proposes a 25,700 KW cogeneration facility. Please clarify this apparent discrepancy.

RESPONSE

The comment mischaracterizes the data in Table H-8 of Appendix H to Volume III. Table H-8 summarizes essential electrical power needs and compares them with presently committed, on-island electric generating capacity. This table indicates that a peak electrical power demand of 45,025 kw would be realized in 1999, a secure electrical capacity of 6,000 kw would be available at that time, and the resultant cumulative essential power shortfall would be 39,025 kw.

As stated on both pages 11-72 and 11-77 of Volume III, and in Appendix H of Volume III, the selection of a new cogenerating facility on Deer Island having a capacity of 25.7 MW as based on economics: The new facility would be a peak shaving unit; its size was determined to be the most cost effective alternative based on the electrical load projections and economic assumptions as described in Appendix H. As a secondary benefit, the new cogeneration facility, in conjunction with the presently committed DeLaval generators will provide sufficient power to keep primary treatment in service in the event of a total power failure, such as the 1965 northeast blackout. However, the Recommended Plan calls for two, independent off-island electrical supplies, each at 70 MW, to fulfill the 100 percent redundancy criterion for operation of the entire Deer Island treatment facilities.

Essential power is that power required to operate those plant operations which, if interrupted, would result in

unacceptable discharges and/or could present danger to personnel health and safety.

Secure capacity is that capacity which, because it is provided from two separate sources, is considered to be totally reliable in accordance with EPA criterion as specified in EPA Technical Bulletin EPA-430-99-74-001.

The MWRA is conducting additional studies regarding the economics of onsite cogeneration and the sizing of on-island power plant.

COMMENT

Volume III, Page 11-77 and other places: The report indicates that the MWRA will phase the on-site cogeneration facility by initially constructing the combustion turbine portion of the facility. Please be aware that even if the MWRA intends to phase this facility the initial air permit must address the entire consolidated project. DAQC will review the permit application for the cogeneration facility as one complete facility and will not consider the combustion turbine and heat recovery steam generator as two separate projects to be permitted on two separate dates.

RESPONSE

The MWRA concurs that all combustion sources associated with the cogeneration facility are to be addressed in a single DAQC permit application.

COMMENT

Volume III, Page 11-77: The last sentence in paragraph 4 states in part "it is recommended that the capability for supplemental firing of the heat recovery steam generator (HRSG) be provided." While the combustion turbine has a rated output of 22 MW, and the response to the DEQE comments regarding page 1-20 indicates that the balance of the 3.7 MW will be supplied by the HRSG for a total output of 25.7 MW, the impacts of the supplemental fuel firing must be assessed should this option be selected. The air approval process will require assessment of all combustion units at their maximum firing capacities, unless the applicant proposes capacity restriction which is approved by the Department. Please note also that Figure H-7 in Appendix H, Volume III indicates different rated capacities for the power generating equipment. Please correct or clarify.

RESPONSE

The MWRA concurs that all combustion sources associated with the cogeneration facility need to be addressed in a DAQC permit application, including any supplemental firing for the HRSG. Volume III, Appendix H, figure H-7 indicated a combustion turbine/generator output of 20.5 MW. This output is based on the average summer ambient temperature. The steam turbine/generator output indicated in Volume III, figure H-7 is 5.0 MW. This should have been 5.2 MW and the total output would be 25.7 MW.

At various locations in the text the combustion turbine/generator output has been stated as 22 MW and the steam turbine/generator output has been stated as 3.7 MW. The 22 MW output is the combustion turbine/generator output under isokinetic conditions. The 3.7 MW output is the steam turbine/generator output without supplemental firing of the exhaust gas. Additional studies of on-site power generation are being carried out.

COMMENT

Volume III, Page 11-77: The report states that initially primary effluent will be utilized for condenser cooling water for the cogeneration facility. The Department wishes to stress the potential for adverse impacts in the long-term use of primary effluent for condenser cooling water. The use of primary effluent with its higher solids content may result in excessive deposition resulting in a loss of heat transfer efficiency and corrosion. Supplemental fuel firing must be included in the power/energy needs analysis to compensate for this potential situation.

RESPONSE

The FEIR/EID indicates at page 11-77, Volume III that initially, primary effluent would be used for condenser cooling, and then secondary effluent when it is available. Under the base construction plan, secondary effluent would be available in 1999; for the accelerated secondary treatment plan, i.e. "Plan A," described in Section 12 of the FEIR/FEID, secondary effluent would be available in 1996, approximately one year after startup of the new onsite cogeneration facility. At any event, neither supplemental fuel firing, nor derating of onsite generating capacity would be required during the temporary use of primary effluent as condenser cooling water: The design of the condenser cooling system would be based on the use of primary effluent as cooling water. Factors such as the size of the condenser, design cooling water velocities, condenser cooling water chlorination and operation/maintenance features would be selected to ensure reliable operation of the system, at the rated design generating output.

COMMENT

Volume III, Page 11-78 states that if anaerobic digestion facilities are constructed on Deer Island additional heating capacity will be required. It's unclear from the report whether this additional load (11,130, and 21,000 BTU X 10 during the periods 1995 to 1998 and 1999 to 2020, respectively) is available or would require revision to the proposed plan; and if so, what problems that might cause. Please discuss.

RESPONSE

Sufficient quantities of steam for both building heating and for the maximum digester steam heating requirements can be extracted from the heat recovery steam turbine. During periods

when the power generation plant is not operating, the building heat and digester heat requirements would be met either by firing the heat recovery steam generator by use of the duct burner, or by use of auxiliary heating boilers. The selection of which option to use is dependent on economics during final design of the power plant.

COMMENT

Volume III, Page 11-84: The report indicates that discussions have been held between the MWRA and Boston Gas regarding the possibility of bringing a dedicated gas line to Deer Island. The report states, "However, no fuel cost information could be made available since Boston Gas has not yet made arrangements to secure sufficient gas to serve the Deer Island need." It is unclear whether Boston Gas believes that there are, or could be made available, adequate reserves of gas for the plant. This should be clarified in the document.

RESPONSE

Boston Gas has provided the results of a preliminary study to the MWRA in which costs for providing gas supplies to Deer Island sufficient for either a 28 MW or a 59 MW cogeneration facility are presented.

COMMENT

Volume III, Appendix H, first paragraph of Section 1.6. The report recommends that the MWRA immediately file a Power Service Agreement with BECo requesting electric service to Deer Island. The MWRA should indicate the status of this filing.

RESPONSE

The Power Service Agreement between BECo and the MWRA is expected to be executed in early 1989.

COMMENT

Volume III, Appendix H, first Paragraph of Section 1.6. Report states that no later than January 1990 15-20 MW of power will be needed and that one of the 115 kv cables must be operational by January 1992. The MWRA should indicate whether they have developed project timelines yet which show that these two activities are implementable by the dates indicated.

RESPONSE

The supplement to Appendix H, Volume III, entitled "Off-Island Utility Supply," updates and revises the recommendations for meeting utility needs at Deer Island. The supplement describes detailed project timelines which provide for implementing a 20 MW interim electric power supply from BECo's K-Street Substation to an interim Deer Island substation in 1990. This interim supply would be designed to ultimately provide 70 MW

of permanent power to the future permanent Deer Island substation.

COMMENT

Last three paragraphs in Section 4.2, Appendix H, Volume III, Immediate Electric Power Demand. The report states that unless 15,000 kw are available at Deer Island, the two tunnels cannot be simultaneously constructed. The MWRA should verify that their schedule for tunnel construction and power availability (15,000 kw) are compatible.

RESPONSE

Refer to the Supplement to Appendix H, Volume III which provides an implementation plan for interim power. Twenty MW of interim power will be supplied in 1990 by a cross-harbor cable route to Deer Island from BECo's K-Street Substation. Tunnel construction will begin in late 1990, which is compatible with planned electric power service.

COMMENT

Section 9.0 in Volume III, Appendix H, Third Party Interest. The report states that various third-parties have indicated an interest in developing, owning and/or operating the power plant portion of the Deer Island Facility (Swift River/Hafslund Company) and recommends that the MWRA consider issuing a RFP for the on-site power plant. Further discussion must be held with DAQC regarding this option.

RESPONSE

The MWRA is presently evaluating an option to issue an RFP to potential third party suppliers for the onsite cogeneration facility. This evaluation is also addressing whether legislative approval may be required for a third-party power supplier. Pending the results of this evaluation, the MWRA will coordinate planning for this potential arrangement with the DAQC.

COMMENT

As previously mentioned, the cogeneration unit(s) will likely require a PSD review. This review will also need to address the ability for the project to comply with the NO² increment requirements. Table H-25 in Section 8.1.4 of Volume III appears to indicate an annual NO_x increase of 15 ug/m³. The proposed PSD increment for NO² is 25 ug/m³.

RESPONSE

The comment appears to mischaracterize the estimated NO² impact concentrations for all alternatives are lower than baseline NO² concentrations. The MWRA acknowledges that the PSD increment in effect at the time of permit application for the new cogeneration facility, will be employed.

COMMENT

It is still unclear to DEQE what the actual energy needs for the facilities are due to project phasing. Once detailed design is initiated, the issue should be "revisited" by MWRA to better define and refine the energy needs.

RESPONSE

The new Off-Island Utility supplement to Appendix H of Volume III of the final EIR/EID revises and provides additional information on utility implementation timelines and utility sources. The recommended plan for utility supply simplifies the implementation of interim electrical power by providing 20 MW to Deer Island from BECo's K-Street Substation in 1990. Implementation of permanent off-island electrical power supplies to Deer Island will be in 1994, as will be the implementation for the new, on-island cogeneration facility. The recommended plan for the cogeneration facility indicates a need for re-evaluating facility capacity, based on current economic information available at the time of facility design. The energy needs for the facilities will be reviewed during conceptual design, and an Energy Management Plan for the entire plant prepared.

INSTITUTIONAL CONSIDERATIONS

INTRODUCTION

Designing, gaining regulatory approval for, and constructing a treatment facility of the magnitude required on Deer Island requires a great deal of coordination and cooperation among the agencies and groups involved. Operating under a strict court schedule complicates the institutional situation, and accelerating that schedule, as planned by the MWRA, further complicates matters.

Many institutional comments focused on the impact of the accelerated schedule. The accelerated schedule produces no unacceptable increases in construction impacts. Noise levels rise only slightly (1-3 decibels). Operation of partial secondary treatment at an earlier date produces a greater volume of residuals and changes the quality of those residuals slightly. Investigations by the MWRA Residuals Facilities Plan staff have concluded that several viable options exist for handling the residuals from the accelerated schedule as part of the interim residuals plan.

Several other specific institutional comments and responses concerning scheduling, coordination, regulations, and other matters follow.

COMMENTS AND RESPONSES

FPCAC

COMMENT

There are a number of comments in the final document which are just acknowledged or "duly noted". For the most part, these comments refer to later stages of the project. The FPCAC has requested that a complete listing or "punch list" of these types of comments be compiled.

RESPONSE

The Program Management Unit met with the Chairman of the FPCAC and reviewed those issues that the CAC felt were inadequately responded to. From this meeting, the MWRA developed a list of ten major concerns and responses. This list was distributed to the CAC at the August meeting with a report on the status of planning for the Secondary Treatment Facilities. This list is attached as Appendix B.

DEQE

COMMENT

The project schedules and Alternative Plans delineated in this Volume are not consistent with information presented by MWRA on April 11, 1988. The correct information must be presented.

RESPONSE

The MWRA, in their presentation of April 11, 1988, used the most current information available. Volume VII was finalized on March 15, 1988 and the Alternative Plan was not included in the final version of Volume VII. The Alternative Plan was included in Volume III, that was finalized on March 31, 1988. The MWRA is constantly updating the Alternative Plan schedule.

COMMENT

Volume VII, Figure 5.1.1-1, p.5-4 shows outfall completion in July 1994, which is not consistent with text which indicates a July, 1995 completion date.

RESPONSE

The correct completion date for the outfall is July, 1995.

COMMENT

Volume VII, Page 5-6: Need update status of first 3 project elements relating to geotechnical activities.

The initial marine geophysical field work will begin in May, 1988; the marine boring program will begin after June, 1988. The remainder of the geotechnical schedule is:

June, 1988	Start geotechnical exploration along tunnel alignment.
August, 1988	Acquire preliminary geotechnical exploration information by Lead Design Engineer.

COMMENT

Volume VII, Page 5-13: the report states, "Appropriate sections of the sludge landfilling facilities will be completed by mid-1994 and tested by the end of 1994 to meet the sludge processing needs of Phases 1,2 and 3 of the new primary treatment facilities." This issue needs to be described in greater detail. It is our understanding that this issue has not been discussed with Black & Veatch, MWRA's residuals management consultant. Since such a plan will have significant impacts on the residuals program, any such proposal must be reviewed and assessed by Black & Veatch.

RESPONSE

Communications between the MWRA Program Management Division and the MWRA Residuals Program Manager have indicated that options exist to provide sufficient residuals processing capacity for the Base Plan or the Accelerated Plan. Treatment Facilities Planning and Residuals Planning are coordinated.

COMMENT

Volume VII, Page 5-26 discusses various concepts to expedite implementation of the concrete batch plant. Based upon the problems MWRA is having with the small piers batch plant, it is the Division's strong recommendation that MWRA should obtain the DAQC permit for this large batch plant and not leave permit procurement to the contractor.

RESPONSE

Permitting will be coordinated by the MWRA PMD/PCM Team.

COMMENT

Volume VII, Page 5-29 discusses the On-Shore laydown needs for the Shipyard; 30 to 40 acres for plant needs and 20-30 acres if precast concrete liners are to be used for tunnel. It is the Division's understanding that the Authority's construction coordinator, Kaiser Inc., is to perform an overall shipyard use study. The results of this study will be critical defining the proposed laydown area and must be carefully coordinated with regard to 21E activities at the shipyard. Therefore, this report should be submitted to DWPC as quickly as possible.

RESPONSE

The Shipyard use study, upon completion, will be submitted to the DWPC. The MWRA acknowledges the sensitive coordination that will be required with regard to the 21E activities at the shipyard.

COMMENT

Volume VII, Pages 5-32 and 5-33 incorrectly describe the schedule for EPA's SEIS process.

RESPONSE

The SDEIS was issued in April, 1988. The SFEIS was signed on July 31, 1988.

COMMENT

Volume VII, page 5-33: It was the division's expectation that the report would also indicate and discuss the nature and extent of the project's adverse impacts which could result if permit appeals occur. This information has not been incorporated into the FEIR.

RESPONSE

The schedules show the best case situations for acquiring necessary permits. The report also suggests the obvious impact of an appeals process, the delay of early site preparation activities and subsequent construction operations. Further, the report recommends measures to minimize the potential for delays (see Volume VII, page 5-33). Beyond noting that potential schedule delays would be imminent if appeals occurred, detailed assessment of these delays would depend on the indeterminate time frame of appeals. The discussion in the report focuses on ways to avoid such delays such as close agency liaison, and coordination of engineering activities with regulatory staff. This is described in Volume VII, Section 5.5.1. More detailed permitting, planning and scheduling is being carried out by the MWRA PMD/PCM Team as design progresses.

COMMENT

Volume VII, Figure 5.5.1-1 on page 5-34 indicates that initial permit and construction activities for utilities will take place from March through June 1988 and June 1988 through March 1989, respectively. As of the date of this letter, there has not been any active permit interactions with DEQE. This schedule must be discussed in greater detail with DEQE as it relates to completion of a supplemental EIR report for the long-term power cables, issuance of FNSI, and potential Grant actions.

RESPONSE

The Supplement to Appendix H, Volume III Off-Island Utility Supply, provides updated information on construction schedules for off-island utility supplies. Based on this report, permitting activities have begun and will continue to the summer

of 1989. Coordination with DEQE is underway to ensure timely implementation of the project.

COMMENT

The report indicates that there will be at least 6 separate major 91 license filings at the following times:

- Early Site Prep --4/88
- WWTF on Deer Island--2/89
- Inter-island Tunnel--3/89
- 115kV Preliminary Utilities--5/89
- Effluent Outfall--2/90
- 115kV Utility Supply--5/89

RESPONSE

The MWRA's Project Management Division (PMD) will consolidate license applications where possible. Guidance from DEQE will be sought in determining where and how this consolidation will be most beneficial.

COMMENT

Volume VII, page 5-35: Figure 5.5.1-2 shows Early Site Preparation bid period beginning in 5/88 and 91 License Application submitted in April, 1988. These timelines have not been met.

RESPONSE

The Authority acknowledges that these timelines have not been met. The Early Site Prep design contract began in June, 1988. Current MWRA plans are to complete permitting activities by early 1989.

COMMENT

Volume VII, page 5-4 shows initiation of bid period in May, 1988 yet EOEA MEPA Certificate is not expected to be issued until late May.

RESPONSE

Design, bid and award was meant to encompass the time period between February 1 and September 1, 1988. Refer to page 8-34 of Volume VI, Early Site Preparation.

COMMENT

Volume VII, Figure 5.5.1-3 on page 5-36 does not indicate that a 91 License will be necessary for various utility installation activities. In order to ensure that this is accurate, DWPC needs additional detail regarding routes.

RESPONSE

The Supplement to Appendix H, Volume III Off-Island Utility Supply, provides updated information on permitting for off-island utility supply. It has been assumed that a Chapter 91 License

will be required for construction activities occurring below mean high water.

COMMENT

Volume VII, Figure 5.5.1-4 on page 5-37 shows the 91 Waterways Licenses and ACOE Permit filings for Phase I of the Utility Project in May, 1988 and Figure 5.5.1-5 on page 5-38 indicates ACOE filing for Phase II of Utilities Project in May, 1990. Has ACOE agreed to segmented filing? DEQE questions whether adequate detail will be available to MWRA to allow for a 91 License filing in May.

RESPONSE

The Supplement to Appendix H, Volume III Off-Island Utility Supply provides updated information on permitting for off-island utility supplies which revise the commented information. According to revised schedules, permitting activities will begin in December, 1988 and continue through October, 1989. Permitting activities include preparation of applications as well as review and approval by regulatory agencies. At this time, a Section 10 permit, only, is expected to be needed from the ACOE, and only for the interim electrical power route.

COMMENT

Volume VII, Figure 5.5.1-4 shows EPA issuance of NPDES Permit in September, 1989, yet DWPC Surface Water Permit three months later in December. Why a three month difference?

RESPONSE

DWPC is required to act on a water quality certification application within 90 days of the submittal of a complete application. Therefore, the schedules should indicate a three month time frame for this activity and the certification should be obtained prior to the issuance of a Chapter 91, NPDES and COE permits.

COMMENT

Volume VII, Figure 5.5.1-6 on page 5-39 does not include a 131/40 Wetlands Order of Conditions from either the Boston or Quincy Conservation Commission's for access shafts. Are shafts outside their jurisdiction?

RESPONSE

For the Inter-Island Conveyance System, Figure 5.5.1-6 indicates that a Wetlands Order of Conditions will be required from the Boston Conservation Commission. It also shows that one will be required from the Winthrop Conservation Commission. An Order of Conditions will be required from the Quincy Conservation Commission for the construction of the access shaft on Nut Island; however, one will not be required from Winthrop for treatment plant construction since Deer Island is within the corporate boundary of Boston. Therefore, the schedule should

show Quincy Conservation Commission instead of Winthrop Conservation review and issuance of Orders of Conditions.

COMMENT

Volume VII, Figure 5.5.1-7 on page 5-40 indicates a DAQC permit filing in February, 1989, yet page 5-4 appears to indicate design phase still underway until mid-1990. Please discuss differences.

RESPONSE

Figure 5.5.1-7 incorrectly shows the DAQC permit filing; permit filing need not occur until January, 1991 for the new cogeneration facility, which is consistent with the engineering schedule (refer also to the response to DEQE's comment regarding Section 8 of Appendix H to Volume III).

COMMENT

Figure 5.5.1-7 should also indicate that the Quincy Conservation Commission will need to issue an Order of Conditions for work on Nut Island.

RESPONSE

The MWRA concurs.

COMMENT

Volume VII, page 5-42 should be updated with regard to March 30, 1988 letter from DWPC to MWRA regarding site hearing requirements.

RESPONSE

Volume VII was finalized on March 15, 1988. The DWPC ruling with regard to the site hearing requirements is as follows: "...In addition, concurrent with the completion of facility planning, a site hearing, pursuant to Chapter 83, Section 6 of the Massachusetts General Laws for Sewage Treatment Plants, must be held. DWPC proposes to hold a consolidated public hearing for the siting, construction and operation of all elements of the Deer Island Secondary Treatment Facility including the grit and screenings landfill but exclusive of the demolition landfill. DWPC has determined that the construction of the new Nut Island Headworks Facility in conjunction with the demolition of the existing Nut Island Wastewater Treatment Plant does not require a site hearing because the overall project impacts will be drastically reduced from those which currently exist..."

COMMENT

Volume VII, page 5-43, Table 5.5.2-1 should be revised to indicate that EPA will issue either a FNSI or an EIS for the WWTF.

RESPONSE

The MWRA concurs that EPA will issue either a FNSI or an EIS for the WWTF.

COMMENT

Volume VII, page 5-46, table 5.5.2-1 should also include DEQE/DSWM processing of demolition landfill site hearing plans.

RESPONSE

Refer to the response to DEQE's comment regarding page 11-133 of Volume III.

Special construction procedures, including size limitation of demolition debris pieces and removal of protruding reinforcing steel, are currently being considered by the Early Site Preparation Project to facilitate the appropriate disposal and reuse of these waste materials in the landforms. Preliminary discussions between the MWRA and the Division of Solid Waste have indicated that this disposal/reuse concept could be approvable contingent on the Division's review of the special procedures. This approach will eliminate the need for associating landfill site assignment for demolition debris by the Division, within the early site preparation timeframe.

For "organic" demolition debris (e.g. wood waste, etc.) site hearing requirements may apply at a later time, if the MWRA chooses to dispose of this material on Deer Island.

COMMENT

Volume VII, Comment No. 5 was not adequately addressed. Figure 3.3.5-1 on page 3-59 should be updated to include the overall Short-term ("Mid-term") Residuals Schedule, not just through "Development of the RFP."

RESPONSE

At the time Volume VII was finalized, March 15, 1988, this was the best available information the MWRA distributed. This information was directly obtained from the Residuals Unit of the MWRA.

COMMENT

Volume VII, Comment No. 6 regarding permit and license processing and appeals was not adequately addressed in the FEIR. MWRA indicated that the CPM schedule conducts "what if" analyses as problems arise. It would be more useful to conduct various "what if" scenarios now to see how the project might be impacted. This would be helpful in devising strategies to deal with various permit appeals situations.

RESPONSE

Refer to the response to DEQE's comment regarding page 5-33 of Volume VII (page 60).

Boston Redevelopment Authority

Paul Reavis

Assistant Director for Engineering and Design Services

COMMENT

Because of the high demands for construction resources in the Boston area and the potential for conflicting requirements, the establishment of a construction coordinating committee, comprised of representatives of the major construction projects, may be advisable and should be investigated.

The hiring and training of a skilled staff is a priority and should be addressed as early as possible. Job training and recruitment could be directed to those communities which are severely affected by the construction of the treatment facilities, including the neighborhoods of East Boston and Charlestown. We recommend that the MWRA explore with the Mayor's Office of Jobs and Community Services and the Boston School Department the feasibility of establishing job training programs for Boston residents in local high schools and community colleges. Outreach programs to the communities of impact also should occur during the 10-13 year construction period, with hiring preferences given to residents of these communities.

RESPONSE

Several efforts are underway to assess ways of meeting the demand for construction and operations workers. Efforts include cooperation with the Central Artery/Third Harbor Tunnel Project, a worker needs study being compiled by the MWRA PMD/PMU team, coordination with the Executive Office of Economic Development and the Executive Office of Human Resources. Additional outreach and training efforts will be developed as the project proceeds.

COMMENT

Some tasks, such as obtaining numerous federal, state, and local permits, and conducting necessary geotechnical and engineering surveys, will require extensive time periods. Therefore, these activities should be begun as early as possible to avoid unnecessary project delays. In addition, the EIR (Vol. VII, Institutional Considerations) recommends several modifications to existing laws and regulations pertaining to capital financing mechanisms, which could reduce the impact of the Harbor Clean-Up Program on local rate-payers as well as assure prompt implementation of the program. We support the MWRA's efforts to pursue approval of the modifications through the Legislature.

RESPONSE

The MWRA will continue to seek ways to expedite permitting to avoid project delays. The start of permitting activities, in many cases, requires relatively detailed designs, and so must be delayed until the treatment plant design proceeds somewhat.

COMMENT

In order to minimize to the greatest extent possible traffic impacts on adjacent communities, we recommend that the MWRA strengthen its commitment to bus workers to the site prior to the completion of the piers. Since the MWRA intends to establish satellite parking areas for those workers who would not be using ferries to the islands, these lots should be made available during the pier construction period so that the busing commitment could be implemented.

RESPONSE

The MWRA will establish satellite parking areas as soon as possible to meet their commitment to bus workers. The MWRA will establish satellite parking lots as soon as possible, but it is not likely that they will be available in time to bus the relatively small number of pier construction workers. Plans are in place to require busing Early Site Preparation workers to Deer Island as a pilot program for the later, more extensive busing programs.

COMMENT

The selection of satellite parking areas requires clarification. The selection of the final proposed site or sites should be indicated.

RESPONSE

The seven sites listed in Appendix S to Volume III, Treatment Plant, are all recommended for further action. A decision by the MWRA as to which site or sites will be developed is imminent.

Daniel B. Curll, President
The Boston Harbor Associates

COMMENT

At a minimum, the applicant (MWRA) should be asked by EOE to tabulate the points raised and provide some cross referencing to the letters received.

RESPONSE

To the extent possible, the MWRA has grouped comments according to topic to facilitate public review of the responses.

Outfall Location

Harbor studies will assess the outer boundary of site 5. There are no plans to review site 6. The MWRA has been appropriated the necessary funds to begin research on Mass. Bay starting in 1989.

Pilot Plant

2 pilot plants will be used. A truck mounted portable pilot plant and a 2 mgd. fully operational pilot plant located on DI to be in place in 30 months.

Source Control

The Facilities Plan Volume II will be amended to include the I/I study. The MWRA now has the staff positions on board to implement this policy. A new program manager for Toxics Control has been assigned. The MWRA is currently developing a household hazardous waste program and is committed to a strong pre-treatment and source reduction program. The metering systems in communities will help to monitor flows. Permitting systems have not proven effective in the past.

Residuals Treatment

Information will be finalized when the Residuals Facilities Plan EIR is released in November 1988. It is likely that only digesters will be located on Deer Island.

Accelerated Construction Plan

The MWRA Board of Directors has approved the Accelerated Schedule for Secondary Treatment. The prison will be decommissioned in 1991; pending allocation of state funds. A final decision on the court schedule will be made in November or December when all parties meet to establish new deadlines.

Hazardous Materials

The MWRA is currently negotiating with DEQE on methods of disposal. At the present time, the Authority is determining the amount, if any, of hazardous materials located on the island. There is now an indemnity policy in place at the Authority.

Waste Disposal

The Third Harbor Tunnel Project is likely to utilize debris. This is not a major concern for the MWRA since there are many uses for the excess material.

Power Supply

The MWRA needs 2 independant power supplies necessary for interim power and will build a 27 or 68 MW plant on Deer Island. The Authority is in the process of coordinating the necessary power needed for tunnel boring by pursuing dual routes for power supply. One route would be overland through Winthrop and the other a submersible cable across Boston Harbor.

Section 61 Findings

Are being compiled to be included in The Response to Comments Document in October 1988.

Early Site Preparation

An overall site coordinator has been chosen for site control (noise, rodent and odor control). All the necessary precautions will be administered. Grit and screenings will be relocated during ESP into a secure landfill on the southern landform.

